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Federal Government Processing Services Market 1985-1990

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1985-1990

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I   INTRODUCTION

A.   PURPOSE

- This report on processing services was prepared as part of the Federal Information Systems and Services Program (FISSP).

- FISSP clients expressed interest in the potential of this services market in view of the escalation of personal computer (PC)-based end-user computing and the rate increases in telecommunications caused by the AT&T breakup.

- Research for this report was based on the INPUT Procurement Analysis Report (PAR), previous INPUT research for other programs prior to 1985, General Services Administration (GSA) records, and discussions with FISSP vendor clients.

- The original report draft was completed just prior to a major change in GSA-TSP policy and procedures. It was then revised to include both the changes and their likely impact on RCS expenditures and revenue.

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B. SCOPE

- This report covers those commercial processing services identified in the OMB/GSA/NBS Five Year Plan for GFY 1984 to 1988, related federal agency long-range ADP plans or information technology plans, federal agency Information Technology Budgets, and GSA-Teleprocessing Services Program (TSP) forecasts.

- The remote computing services (RCS) segment was emphasized in the research for this report. Processing Facilities Management (PFM) details are included in the separate federal facilities management report of FISSP. Batch processing is a very small portion of the federal processing market, and therefore is not treated in any depth in this report.

- The agencies selected for interview were identified in one or more of the documents listed above as users of commercially available processing services.

- GSA was interviewed as the management agency for TSP.

- The vendors selected for interview included all of the major federal vendors and a number of smaller vendors under contract to specific agencies.

C. RESEARCH METHODOLOGY

- The Five Year Plan and GSA-TSP report were reviewed to select agencies for detailed interviewing, to analyze budgets, and to look for contracting trends.

- Reports concerning GSA's administration of the government's ADP fund were researched back to GFY-1977, and isolated summary figures were traced to

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GFY-1973 to identify all vendors with major or significant federal contracts for processing services.

- Two questionnaires were developed for interviewing vendors and government agency personnel. A copy of each questionnaire is included in Appendix F.

    - The questionnaires were developed from client discussions, previous INPUT research of commercial processing services, and discussions with government officials.

        . The vendor questionnaire was designed to discover the industry share of market, types of services available, and future directions.

        . The agency questionnaire was planned to identify key supports (vendors), intentions with respect to RCS applications, and expected growth in usage.

    - Both included similar questions about vendor performance character-istics, RCS benefits and problems, and interest in microcomputer-based distributed services.

    - The vendor interview sample covered all the major vendors to the federal government plus several smaller vendors. Nineteen different companies were interviewed.

    - The federal agency representatives provided 51 interviews from 21 federal agencies. All representatives were experienced in various phases and applications of processing services in the federal environment.

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D. REPORT ORGANIZATION

- The report has been organized into four sections:

    - Executive Summary.

    - The Market and the Competition.

    - Market Analysis--Vendor Perspectives.

    - Market Analysis--Agency Perspectives.

- Six appendices are provided to aid in report use:

    - Interview Profiles.

    - Definitions.

    - Glossary of Federal Acronyms.

    - Related INPUT Reports.

    - MASC Vendors and Hardware Offered.

    - Questionnaires.

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II EXECUTIVE SUMMARY

- This executive summary is designed in a presentation format in order to:

  - Help the busy reader quickly review key research findings.

  - Provide a ready-to-go executive presentation, complete with a script to facilitate group communication.

- Key points of the report are summarized in Exhibits II-I through II-7. On the left-hand page facing each exhibit is a script explaining the contents of the exhibit.

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A.   FEDERAL PROCESSING SERVICES FORECAST

- INPUT estimates that the federal government processing services market will increase from $900 million in FY 1985 to $1.4 billion by FY 1990, at an average annual growth rate (AAGR) of 11%.

- The largest service mode is Remote Computing Services (RCS), estimated to grow from $600 million to $1.0 billion at an AAGR of 9%, down from the 11% rate estimate of a year ago.

    - More than half of the yearly forecast is spent by the Health Care Finance Administration (HCFA) of the Department of Health and Human Services for contractor-operated insurance claims processing at the state level.

    - About one-third of the RCS forecast supports the General Services Administration (GSA) Teleprocessing Services Program (TSP), which provides RCS to all executive branch agencies by mandate, and to other federal activities through the Master Agreement Schedule (MAS) and/or Basic Agreements (BA).

    - The remainder is spent on separately-negotiated contracts for RCS to some agencies on an exception basis.

- The second most significant service mode is Processing Facilities Management (PFM), called COCO (Contractor-Owned, Contractor-Operated) in the federal sector, where essentially dedicated DP resources are provided to a specific agency. The increase from $200 to $400 million will result in an AAGR of 16%.

- Batch mode is used primarily for public service surveys by Education, Defense, and Commerce on a cyclical basis, and is not expected to increase.

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EXHIBIT II-1

FEDERAL PROCESSING SERVICES FORECAST, GFY 1985-1990
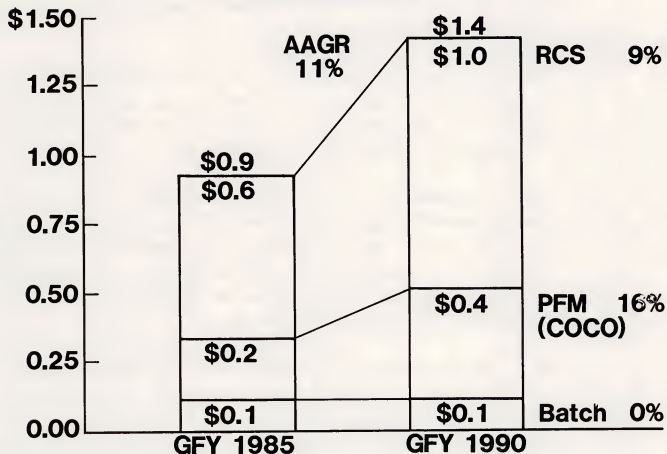
Rounded to nearest $100 million

B.   TRENDS IN FEDERAL PROCESSING SERVICES

- The RCS mode has encountered a two year decline in demand that has been principally fueled by increasing federal end-user computing employing micro- and minicomputers. End users have shifted to PCs to overcome increasing delays and procedural complexities in obtaining new or revised applications. Availability of low-cost modems and local area networks (LANs) are extending the erosion of RCS end users.

- The RCS vendor base has been relatively stable since 1978, involving some 70 to 100 firms. In the past 18 months, however, a number of vendors have merged or have been acquired by large RCS or aerospace firms, changing the mix of the top 15 in MAS and BA, and in TSP overall.

- Continued emphasis by GSA contracting on lowest overall bid awards in the Basic Agreement schedules is inviting offers of raw computing power disasso- ciated from technical assistance to the user, programming support, training, and support not required by the terms of the agreement. User complaints about the absence of services provided in earlier MAS and BA contracts ignore the realities of government contracting practices.

- Batch processing has declined substantially in all markets in the past decade, including the federal government. There appears to be a continuing demand for card-based or data-tape information collection typical of surveys for certain federal agencies who either cannot justify in-house DP resources or prefer to keep the cyclic, noncontinuous demand for service out of their routinely-scheduled data centers. New low-cost micro- and mini-based computer systems availability indicates transition of surveys to in-house systems by the end of the decade.

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EXHIBIT II-2

TRENDS IN FEDERAL PROCESSING SERVICES

- **Eroding RCS End-User Computing with LANs**

- **Mergers and Acquisitions Creating Fewer, but Larger, Vendors**

- **Raw Computing Power Bids in TSP-BA Stripping Important Services from Awards**

- **Batch Processing In-House Moving In-House**

C.   AGENCY GFY 1985 DATA PROCESSING BUDGETS

- The RCS portion of the ADPE Time function of the agencies' GFY 1985 Information Technology (IT) budget is about $256 million. This amount covers both TSP and separately-negotiated RCS contracts.

- Among the agencies required to forecast IT expenditure, via OMB Circular A-11 Section 43, certain agencies appear to be the largest buyers/users of RCS services:

    - The Army, Education, Treasury, and Navy/Marine Corps estimate expenditures of $135 million, which represent almost 53% of the proposed budget.

    - With the addition of six more agencies, the combined budgets are nearly three-fourths (73%) of available funds. These additional six agencies are: Air Force, NASA, Commerce, Veterans Administration, Interior, and Agriculture.

- All other federal agencies, including public corporations (TVA, USPS), Congress and its support agencies (GAO, GPO, CBO, Library of Congress), and the Executive Office of the President, account for $68.4 million, or 27%, of the proposed budget.

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EXHIBIT II-3

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AGENCY GFY 1985 DATA PROCESSING BUDGETS

Total = $256 Million

(Pie chart segments:)
- 53%
- 73%
- Education $33 M
- Army $50 M
- Navy/USMC $25 M
- Treasury $27 M
- Air Force $13 M
- NASA $10 M
- $9 M
- $7 M
- Comerce
- Veterans
- Interior $6.6 M
- Agriculture $6 M
- All Other Agencies $69.4 M

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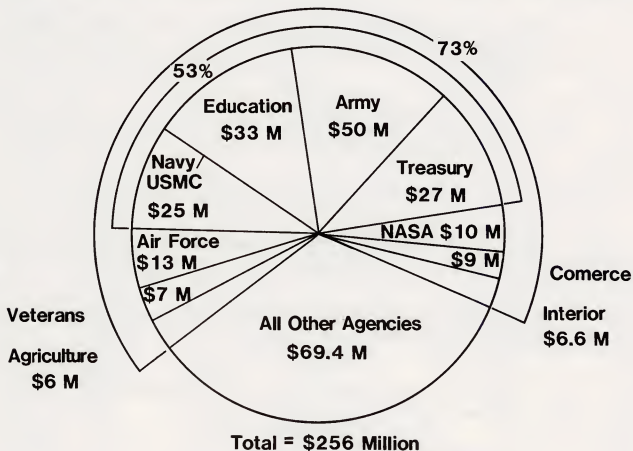
D.   GSA-TSP VENDOR MARKET SHARE, GFY 1984

- GSA reported early in 1985 that the GFY 1984 TSP had declined from its projected $175 million to under $140 million, reflecting disappointing MAS sales.

- The two largest vendors in GFY 1984 for combined MAS and BA revenues were Boeing Computer Services (BCS) and Computer Sciences Corporation (CSC-INFONET).

    - BCS, as the leading contractor, garnered 33% of available revenues, almost twice CSC's revenue.

    - CSC, as the second largest vendor, had 17% of available funds.

    - BCS and CSC won 50% of the TSP funding in FY 1984, continuing their positions as top vendors in the program.

- The next three vendors have only recently moved into the Top Five Contractor category.

    - Control Data Corporation, with its acquisition of United Information Services, became number 3 with 13% overall.

    - McDonnell Douglas Automation (MCAUTO) became number 4, with 5% of the total TSP funds, after its acquisition of Tymshare.

    - Electronic Data Systems' Optimum Systems Division rose to number 5 with an aggressive proposal campaign (winning 4% of the total). EDS, through its state medical claims processing, is the largest government RCS contractor.

- The five companies claimed 72% of the available TSP revenues in GFY 1984.

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EXHIBIT II-4

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GSA - TELEPROCESSING SERVICES PROGRAM
VENDOR MARKET SHARE, GFY 1984

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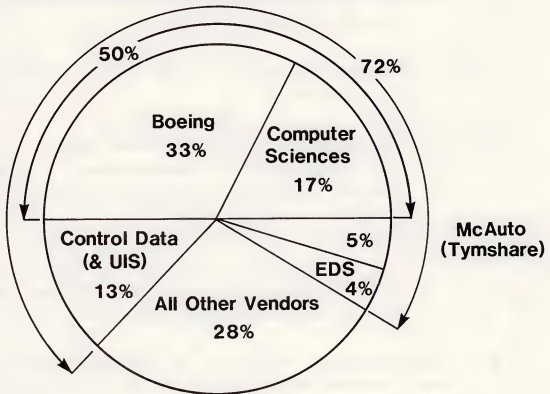
- Both agencies and vendors were asked to rate the agencies' levels of satis-
  faction with RCS vendor performance in what are perceived to be the seven
  most important categories.

    - Systems uptime, indicating availability for RCS client use, was rated
      the most satisfactory by both groups.

    - Response time was selected as the second most satisfactory perform-
      ance characteristic.

    - Customer support, delivery (of special applications), training, and
      documentation were next, in descending order. All four, however, were
      uniformly less satisfactory than the first two characteristics, sug-
      gesting the need for improvement.

    - Cost estimates were the least satisfactory. The vendors are well
      aware of the client attitude, as noted by their lower rating than that of
      the agencies for only this single characteristic.

- Vendors who plan to improve their TSP capture ration need to evaluate how
  their performance profile can be improved over this industry average.

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EXHIBIT II-5

LEVELS OF SATISFACTION
WITH RCS VENDOR PERFORMANCE

Category	Agencies	Vendors
Customer Support	4.2	4.4
Training	4.0	4.2
Documentation	3.5	3.9
Delivery of Special App.	3.3	3.8
Cost Estimates	3.3	3.6
Uptime	3.0	3.2
Response Time	2.9	2.4

Level of Satisfaction — 1 Least ... 5 Most

☐ Agencies
▨ Vendors
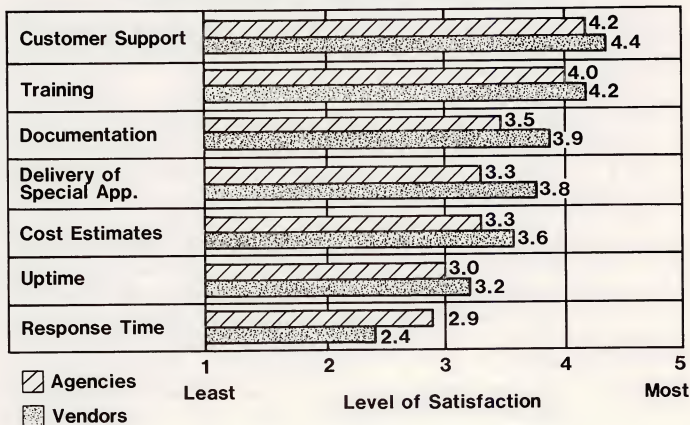
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F. FEDERAL PROCESSING SERVICES PRESSURES

- These five relatively recent activities in the federal RCS marketplace are expected to influence substantially the mix of vendors in these next few years.

- After many discussions, proposals, and counter-proposals, OMB finally levied the ADP security certification requirement on processing services vendor facilities on federal contracts. Compliance is a hard requirement, with very few exceptions.

- GSA noted the steady and disappointing decline of the TSP-MAS over the past three years and has tried to reverse the trend. Vendors and agencies describe MAS as an administrative challenge that suggests termination if it is not substantially revised for GFY 1986.

- The addition of Distributed Data Processing capability with microcomputers and micro-mainframe links under the MAS has been offered by vendors for two years. GSA placed the change under consideration for GFY 1986 after it learned that nearly 46% of commercial clients use the option.

- Under the new OMB A-76 "Productivity Improvement Program," agencies are required to solicit bids from federal data centers as well as vendors for their cost comparisons, within the purview of the new REFORM 88 agency audits.

- The changes in competitive procedures and protest ground rules and the expansion of protest eligibility of the competition in the Contracting Act (CICA) are expected to have a significant impact across the federal marketplace.

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EXHIBIT II-6

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FEDERAL PROCESSING SERVICES PRESSURES

- Security Certification Requirement

- TSP-MAS Decline and Shift to BA

- TSP-MAS DDP/Microcomputers Services

- Federal Data Center Competition Under A-76

- Competition in Contracting Act - 1984

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G.   VENDOR RECOMMENDATIONS

- Studies of the agency interests in the survey clearly show the interest in continuing small applications and the use of proprietary software for a range of problems in the vendor environment over the next five years. Individual contracts may be small, but can be extended for three years or more.

- Being listed in the BA Schedule does not bring contracts, it only guarantees receipt of most, if not all, of the BA RFPs (Requests for Proposals). Significant effort to produce effective proposals with a high technical acceptance rate and fully developed pricing strategies are essential to growth (and perhaps survival) in the TSP-BA.

- Several of the more successful TSP vendors are using their experience in technical services and exposure to federal agency ADP requirements to diversify into the professional services market in consulting, design, programming, and analysis and systems integration projects.

- The PFM market is very mature and not readily penetrated by newcomers. The only perceived market openings would come from replacing a withdrawing vendor or acquisition of one of the current contractors and their contract.

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EXHIBIT II-7

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VENDOR RECOMMENDATIONS

- Concentrate on Small Applications and Proprietary Software

- Improve Proposals and Strategy in Response to BA RFPs

- Use TSP Contracts to Diversify into Professional Services

- Acquisition May Be Only Means to Penetrate PFM Market

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III THE MARKET AND THE COMPETITION

A. THE GROWTH OF CONTRACT PROCESSING SERVICES

- Federal agency use of vendor-furnished processing services was relatively unconstitutional until passage of the original Brooks Bill in 1966.

- GSA's administration of remote computing services began in 1972 with the award of the National Teleprocessing Services Contract (NTSC) to Computer Sciences Corporation (CSC). This competitive procurement provided a single source of processing services for all federal agencies, with a simplified but standard procurement process.

  - The contract grew from $3.8 million in GFY 1973 to $37.4 million in GFY 1977, an average annual growth rate of 77%.

  - A key defect of the GSA-originated NTSC, in the opinion of unsuccessful bidders and some agencies, was its limitation to a single vendor. Government agencies had no basis of comparison of either price or functionality.

  - Some agencies found ways to circumvent the single source of supply. For example, the Department of Transportation (DOT) created a Basic Ordering Agreement (BOA) and evaluated each DOT requirement to determine the most economical source of service from many vendors.

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- The NTSC revenues indicated that the federal government represented an aggressively growing marketplace. Vendors were anxious for a new contract which would open the market for competition.

- GSA's response to both agency and vendor complaints was the creation, in 1977, of the Teleprocessing Services Program (TSP), composed of two parts: the Basic Agreements (BA) and the Multiple Award Schedules (MAS).

  - Vendor acceptance for BA listing required agreement to specific terms and conditions which would be common to all RFPs issued.

    - Being on the list assured the vendor of receipt of a copy of each RFP issued.

    - Any vendor could be added to the BA at any time by responding to an RFP issued under the BA.

  - Vendor acceptance for the MAS was a more difficult process. GSA attempted to shove computer services into existing procurement procedures under the older Federal Procurement Regulations.

    - The terms and conditions, penalties, and liquidated damages gave corporate lawyers much agony.

- Preparation of all commercial documentation in GSA format proved an expensive and continuing useless exercise.

- Government contracting officers with limited computer services knowledge polished their understanding at the negotiating table.

- At the end of the first year (FY 1977) only seven vendors, with total revenues of $760,000, had been accepted on the Multiple Award Schedule.

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B.   THE FEDERAL PROCESSING SERVICES MARKET

- Unlike the federal professional services market, federal agency demand for processing services in CY 1984 was a mere 6% of U.S.-wide expenditures.

    - Federal agencies have a heavy investment in those ADP resources.

        . The 1984 inventory noted about 20,000 mainframes and mini-computers.

        . Although the inventory is not officially confirmed, agencies are believed to have more than 200,000 microcomputers, in the forms of PCs and workstations.

    - Agencies employ contractor-furnished ADP services when in-house time, resources, or staffing will not permit meeting mission requirements.

- The federal market for processing services is expected to reach $880 million in GFY 1985, and to grow at an average annual rate of 11%, reaching $1.42 billion by 1990, as shown in Exhibit III-1.

    - The largest segment of the processing service's market is now, and is expected to continue to be, RCS.

        . Health Care Finance Administration funding of state-controlled, contractor-furnished Medicare and Medicaid services is estimated at $325 million in FY 1985, and is expected to grow 10% per year.

        . GSA Teleprocessing Services Program (TSP) is expected to spend about $175 million in FY 1985, down about $35 million from earlier forecasts because of MAS erosion.

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EXHIBIT III-1

FEDERAL GOVERNMENT PROCESSING SERVICES
MARKET FORECAST, GFY 1985-1990

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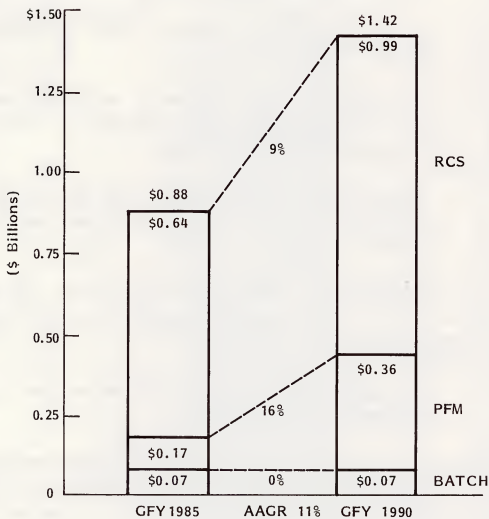
- The remainder represents contracts negotiated by agencies outside the TSP.

- The second largest segment of federal processing services is PFM (Processing Facilities Management), also called COCO (Contractor-Owned, Contractor-Operated), ADP facilities.

  - PFM is expected to experience a 16% AAGR, growing from $170 million in FY 1985 to $357 million by FY 1990.

  - HCFA funding is expected to account for about $140 million in FY 1985, and to grow at 10% per year.

  - The remaining funds come from the GSA ADP fund for several agencies, including DOD agencies, Navy, Army, GSA, and Commerce.

- The smallest segment is batch processing, estimated to account for about $70 million over each of the six years, with zero growth projection.

  - Principal users of the batch mode are agencies performing periodic public surveys, such as Education, Commerce, and Defense.

  - Many of these applications are expected to transition to in-house ADP resources by 1990, or to be converted to RCS applications.

- The growth rate of the federal RCS market has progressively declined over the past two years.

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- 1983 forecasts estimated the AAGR as 13%, based on prior demand.

- 1984 forecasts decreased the AAGR to 11%.

  . The MAS portion of TSP declined for the second year in succession.

  . Increasing end-user computing with PCs has reduced the number of small applications employing RCS.

- Early 1985 forecasts indicate a further decline of the AAGR to 9%.

  . The MAS declined further in 1984, arousing GSA concern about program viability.

  . End-user computing began to employ low-cost LANs to create small networks, detracting from RCS's VAN demand.

- The vendors and agencies surveyed for this study were asked to estimate probable rate of RCS growth in the next two to five years. The distribution of their responses is compared in Exhibit III-2.

  - Although the median for the vendor estimate was 12.7%, 39% of the vendors estimated growth between +10% and -10%.

  - Sixty-five percent of the responding agencies estimated between the identical limits, for a median of 0.7%.

  - The composite median was 6.7%, somewhat less than INPUT's 9%, but supportive of the projected AAGR decline since 1983.

  - GSA noted in communications with TSP vendors and clients that the expenditure shift from MAS to BA appeared driven by three factors:

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EXHIBIT III-2

COMPARISON OF VENDOR AND AGENCY ESTIMATES
OF RCS CHANGE FROM GFY 1985 to 1986 AND FROM 1986 to 1989

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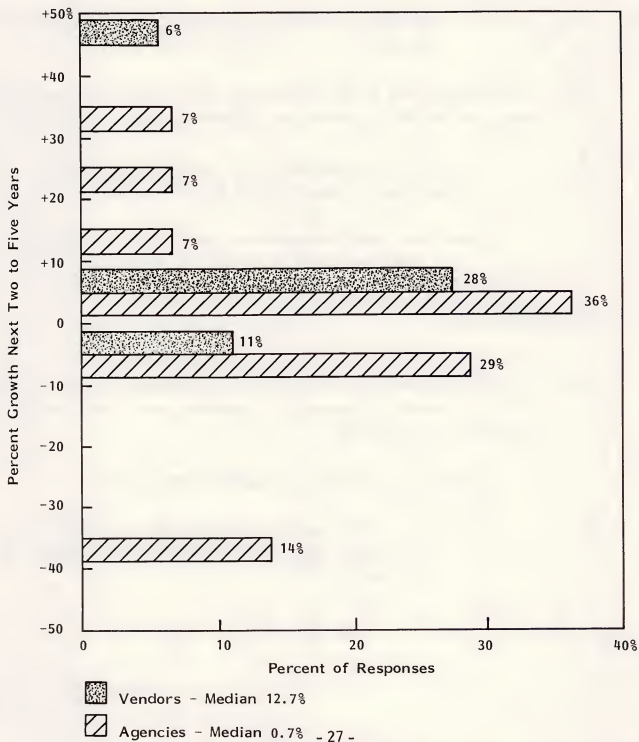
- Increasing interest in "raw computing power," fostered by emphasis on low cost.

    - Progressively poorer agency definition of processing requirements.

    - MAS rules that appear too restrictive to the potential client agencies.

- Agencies were asked if they acquired batch and RCS services outside TSP, and why. Their reasons and the frequency of mention are listed in Exhibit III-3.

    - Proprietary data bases and special (short-term) applications are the two most frequent reasons for using non-TSP contracts.

    - Use of other agency data centers was mentioned most frequently.

C.   THE VENDORS

- Just when it seemed, in GFY 1977, that the teleprocessing services program could not succeed, GSA declared it mandatory, placing the $37 million of NTSC into open competition.

    - By the end of GFY 1978, 38 vendors were on the schedule.

        - Some federal contracts were converted from the NTSC to the CSC schedule contract without recompetition, due to time constraints.

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EXHIBIT III-3

AGENCY REASONS FOR BUYING PROCESSING SERVICES
OUTSIDE THE TSP PROGRAM

REASONS	NUMBER OF TIMES NAMED
Proprietary Data Bases	2
Special Applications	9
Exempt from Mandatory TSP Use	1
University Systems	1
Other Agencies	15
Unknown	5

Source: INPUT Agency Surveys

- Government users, familiar with CSC's Infonet, had no desire to change and found many ways to resist it.

- Over the period of GFY 1978 to 1984, BCS, CDC, EDS, and GEISCO wrested the leadership under MAS from CSC.

    - By FY 1984, BCS had surpassed CSC in the BA market.

- By GFY 1984, the combined MAS and BA market shares of the top ten vendors had changed substantially, as shown in Exhibit III-4.

    - Boeing led in both MAS and BA as a result of aggressive recompetitions in the preceding three years.

    - CSC held on to second place, with only a 3% higher share of the market than CDC.

    - CDC's position was improved by acquisition of United Information Services late in CY 1983.

    - McAuto's share was increased by acquisition of Tymshare in CY 1984.

    - EDS's Optimum Systems Division jumped several positions from the GFY 1983 standings with key awards in Labor and SSA.

- The express purpose of the MAS was to permit the government to buy commercial products from the private sector at favorable prices.

- Elaborate procedures are in place to establish the commerciallity of products before they are added to the MAS offering.

- Exhibit III-5 is a list of the vendors included on the GFY 1984 Multiple Award Schedule.

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EXHIBIT III-4

GSA-TSP MARKET SHARE FOR
TOP TEN VENDORS IN GFY 1984

RANK	COMPANY	PERCENT SHARE*
1	BCS	32.8%
2	CSC	16.6
3	CDC	13.3
4	McAuto	5.1
5	EDS	3.9
6	GEISCO	3.7
7	NDC	3.4
8	DRI	3.2
9	MMDS	3.2
10	NVIP	2.9
	Total	88.1%

* Combined MAS and BA Revenues
SOURCE: GSA GFY 1984 TSP Year-End Report

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EXHIBIT III-5

VENDORS ON THE GFY 84 MULTIPLE AWARD SCHEDULE (MAS)

COMPANY NAME	ACRONYM	COMPANY NAME	ACRONYM
ADP Network Services, Inc.	ADP	IBIS Corp.	
American Management Systems, Inc.	AMS	Informatics General Corp.	
		Information Consultants, Inc.	ICI
Boeing Computer Services	BCS	International Business Machine Corp.	IBM
Bowne Information Systems Inc.	BIS	ITT Dialcom, Inc.	Dialcom
The Brookings Institution		Litton Computer Services	
C.A.C.I., Inc. – Federal	CACI	Litton Systems Inc. (Mellonics Inf. Center)	Mellonics
CSG Corporation	CSG		
Compuserve Data Systems Inc.		McDonnell Douglas Automation Inc.	McAuto
Computer Data Systems	CDSI	Martin Marietta Data Systems	MMDS
Computer Network Corporation	COMNET	National Data Corporation	NDC
		Neshaminy Valley Information Proc. Inc.	NVIP
Computer Sciences Corp.	CSC	Onyx, Inc.	
Computer Sharing Services Inc.	CSS	Planning Research Corp.	PRC
Comshare, Inc.		Programs and Analysis, Inc.	
Control Data Corp.	CDC	Proprietary Computer Systems, Inc.	PCS
D & B Computing Services, Inc.	D & B	SBD Computer Services Corporation	
D.H.D. Inc.	DHD	Softshare	
Kiewit Computation Center		STSC, Inc.	STSC
Data Management Assoc.		Systems Architects, Inc.	
Data Resources, Inc.	DRI	Tymshare, Inc.	
Datec Inc.		Uni-Coll Corporation	
Electronic Data Systems Federal Corp.	EDS	United Information Services Inc. (Now CDC)	UIS
Genasys Corporation			
General Electric Information Services	GEIS		

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- More than half the vendors listed are virtually unknown in the commercial arena.

- Of the 47 listed, only 15 are billing more than $500,000 annually.

- Fourteen are billing so small an amount that the sum of their revenues was only $160,000 in 1983, an average of $11,429 per vendor.

- Seventy-five percent of the GFY 1984 revenues for the MAS went to the top five vendors.

    . Ninety-nine percent of the revenues were earned by the top ten vendors.

- INPUT questions how the TSP MAS vendors can justify the significant discounts being offered for such low annual volumes. The economies of scale are non-existent in such a highly fragmented and competitive environment.

- Six of the vendors surveyed provide RCS, batch, and FM modes of processing services to the federal agencies (see Exhibit IV-1).

    - ADP and COMNET gained 50% or more of their federal revenues from PFM.

    - CSC and Boeing earn at least 25% of their revenues from PFM.

    - Litton and MMDS obtain 50% of their federal revenues from batch processing.

    - Informatics, CDC, CSC, and AMS make more than 30% of their revenues in the batch mode.

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- Bowne, Comshare, Dialcom, DRI, and NDC earn all their revenues in the interactive RCS mode.

- As noted elsewhere in this report (Chapter IV--Vendor Perspectives), vendor reports of processing services revenues are generally about 33% greater than GSA federal agency expenditure reports.

  - Some agency processing expenditures are not reported through oversight.

  - Some agencies use alternate funding sources not subject to reporting to GSA.

D. THE FEDERAL AGENCY CLIENTS

- Exhibit III-6 shows the agency expenditures for GFY 1983, the latest year for which complete expenditure figures are available.

  - Although GSA was the largest buyer under the NTSC, the Army moved into first place with the TSP and maintained top position on the MAS and, with its $30.77 million, on the BA.

  - Note that Navy/Marine Corps is the largest buyer under the GSA-administered ADP fund, which includes some government-owned systems as well as the MASC.

  - GSA is dependent upon the services vendors to report their revenues, by agency, under the BA. Funds flow from the agencies to the appropriate vendors without any GSA involvement. Frequently the vendor reports are delayed and there is not a reliable check for the accuracy of the reports.

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EXHIBIT III-6

AGENCY EXPENDITURES FOR PROCESSING SERVICES, GFY 1983

| AGENCY | GSA "ADP FUND" | | | | | | BA | | TOTAL TSP | |
| | TOTAL | | OTHER | | MASC | | | | | |
	Rank	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank	$ Millions	Rank	$ Millions
Navy/USMC	1	$33.85	1	$22.93	2	$10.92	2	$ 9.80	2	$20.70
Army	2	22.98	2	8.95	1	14.03	1	30.77	1	44.80
DOT	3	12.89	7	2.65	3	10.24	14	.25	3	10.49
GSA	4	8.19	3	6.34	8	1.85	6	5.35	6	7.20
Air Force	5	7.97	4	5.20	5	2.77	8	3.74	7	6.51
HHS	6	4.94	5	3.89	13	1.05	7	4.39	9	5.44
DOI	7	4.68	6	3.83	14	.85	13	.57	16	1.42
Treasury	8	4.36	13	.38	4	3.98	–	–	10	3.98
DOD	9	3.76	8	1.18	6	2.58	3	6.88	4	9.46
DOC	10	2.75	9	1.15	9	1.60	4	5.79	5	7.39
DOE	11	2.73	14	.40	7	2.33	–	–	14	2.33
DOA	12	2.10	10	.94	12	1.16	9	2.50	11	3.66
EPA	13	1.34	11	.80	15	.54	–	–	19	.54
VA	14	1.31	16	.08	10	1.23	–	–	17	1.23
NASA	15	1.29	17	.06	11	1.23	–	–	18	1.23
Labor	16	.80	12	.57	21	.23	15	.20	22	.40
DO Education	17	.48	–	.00	16	.48	–	–	20	.48
DOS	18	.42	19	.03	17	.39	16	.04	21	.43
GAO	19	.38	24	.01	18	.37	–	–	–	–
DOJ	20	.32	15	.25	24	.07	10	2.41	12	2.48
SBA	21	.29	23	.21	19	.28	–	–	23	.28
GPO	22	.25	–	.00	20	.25	–	–	24	.25
USPS	23	.17	18	.06	22	.11	5	5.64	8	5.75
HUD	24	.13	21	.02	23	.11	–	–	25	.11
ICC	25	.06	20	.03	24	.03	12	2.27	15	2.30
TVA	26	.04	22	.01	25	.03	11	2.37	13	2.37

SOURCE: GSA Records - Near System, FY 1983 BA Totals
Vendor Interviews, Agency Interviews

INPUT
GPS2

- The Army's $30.77 million under the BA puts the Army in a clear number one position for the TSP as a whole.

- Vendor representatives were asked to name the agencies which were their principal clients, and their top three revenue producers.

  - Twenty agencies were mentioned as principal clients.

    - Thirteen agencies were named by more than five vendors.

    - Most of these agencies are at the top of the list of spenders.

- Vendors were also asked to name their top three client agencies.

  - Seven vendors named the Army as among their top three revenue producers.

  - DOT was named by six vendors.

  - Navy/USMC was named by five.

- A comparison of the OMB Circular A-11 Section 43 proposed Information Technology budgets for executive branch agencies for GFY 1983 and 1985 indicates some shuffling of agency priorities, as shown in Exhibit III-7.

  - The HHS budget includes the large HCFA allocation for state level, contractor-furnished Medicare/Medicaid programs.

  - The GSA budget includes both GSA in-house processing requirements and the ADP fund for use by other agencies.

  - Army and Education retain their leading FY 1983 positions in 1985.

INPUT

EXHIBIT III-7

COMPARISON OF AGENCY PROCESSING BUDGETS
(OMB A-11), GFY 1983 VERSUS 1985

AGENCY	FY 1985		FY 1983	
	Rank	$ Millions	Rank	$ Millions
HHS	1	$411.0	1	$341.9
GSA	2	116.0	2	98.2
Army	3	50.0	3	55.0
ED	4	33.2	4	34.8
Treasury	5	26.8	8	7.2
Navy/USMC	6	24.6	5	21.4
USAF	7	13.0	6	9.0
NASA	8	9.8	7	8.5
DOC	9	8.9	10	6.3
VA	10	7.1	15	2.0
DOI	11	6.7	12	5.9
DOA	12	6.1	13	5.0
DOE	13	5.0	11	6.2
DOT	14	4.9	9	7.0
DOJ	15	3.3	14	3.8

SOURCE: FY 1983 and FY 1985 OMB Circular A-11 Section 43-Information Technology
Budgets.

INPUT
GPS2

- The next four agencies, Treasury, Navy, Air Force, and NASA, did some shuffling, with Treasury jumping from eighth position in 1983 to fifth in 1985, and being likely to retain that position during its major systems upgrades in 1986 through 1988.

- VA moved from fifteenth to tenth position during its Hospital Information System demonstration phase, and may decline when the tests are complete.

- Energy and Transportation declined as newer in-house ADP resources were brought on-line.

E.   GOVERNMENT-OWNED COMPUTER CENTERS AS COMPETITORS

- GSA also collects and disperses funds via the ADP fund for certain government-owned computer centers, which are becoming increasingly important.

    - These centers constitute the fastest growing portion (23.8%) of the GSA-administered processing services segment (see Exhibit III-8).

    - They represent a continuing erosion of the federal marketplace available to commercial vendors.

    - According to the interviews conducted in the federal agencies by INPUT, all new requirements which can be run on government-owned machines, must be run on government-owned machines.

    - Current applications that grow to sizable amounts are targeted by GSA and agency personnel to move in-house.

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INPUT

EXHIBIT III-8

ADP FUND SALES TO AGENCY REPORT,
GFY 83-GFY 84E

	GFY 83		GFY 84E		GFY 83-84E
	REVENUES ($ Millions)	PERCENT OF TOTAL	REVENUES ($ Millions)	PERCENT OF TOTAL	ANNUAL GROWTH RATE
TSP MASC	$64.43	44%	$58.78	36%	-8.8%
Government-Owned Computer Centers	78.89	54	97.63	60	+23.8
Other	3.07	2	5.57	4	+81.4
Total ADP Fund Expenditures	$146.39	100%	$161.98	100%	+10.6%

Source: GSA Records - Near System

INPUT
GPS2

- Under the 1984 modification of OMB Circular A-76, discussed later, the federal data centers are viable bidders on ADP upgrades.

- In addition to the expenditures identified by GSA as a part of the ADP fund administration, there are significant monies that pass directly between agencies for processing services provided on government-owned computers; these services are called "inter-agency transfers." As an example, NIH operates a rather large remote computing capability.

  - One of the agencies in the survey reported $350,000 of monthly revenue with NIH, or $4.2 million annually, and projected an increase of 50% for next year.

  - Another agency does 100% of its monthly processing of $12,000 with NIH--for $144,000 annual revenue.

  - Many other agencies reported use of NIH facilities, especially in statistics and data base applications, but specific dollar volumes were not provided.

- If NIH were on the TSP MAS with only the $4.3 million annual revenues mentioned earlier, NIH would be the fourth largest vendor for GFY 1984-- exceeded only by Boeing Computer Services ($7.62 million), Control Data Corporation ($5.50 million), and Computer Science Corporation ($4.63 million).

- The National Council of Technical Service Industries (NCTSI) in Washington, D.C., has been active in its attempts to focus attention on the competitive RCS operations developing within government agencies and universities. George A. Daoust, Jr., the Executive Director of NCTSI, has pointed out repeatedly that the establishment of government-owned service centers frequently results because agencies have significantly over-procured computing equipment. "In-effect," he has written, "an agency is rewarded for

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poor procurement decisions by being permitted to subsidize its mistakes with sharing arrangements." (Letter to the honorable Charles A. Bowsher, Comptroller General, GAO; dated September 19, 1983.)

- To date, GAO, GSA, and the Brooks (Government Operations) Committee have shown little concern for the competition generated by government-owned remote computing services.

F. THE CHANGING ENVIRONMENT

- The federal processing services segment has been competitively pressured in recent years.

    - Vendors offering "raw power" have entered the marketplace with low-priced processing.

    - Low value-added offerings have been successful in winning price-sensitive competitions.

    - The government buyer has become increasingly dissatisfied with the technical support and quality of service provided by the low-priced vendors.

- Government requirements that can be satisfied by "raw power" vendors are also susceptible to transfer to in-house government processing centers.

    - The end-user computing micro and mini threat has become pronounced as GSA stores have made the purchase of small computers and the associated software extremely easy.

INPUT

- Knowledgable end users find the microcomputer solution an economical alternative to RCS.

- Novice users find their expectations of success frustrated by lack of technical support.

- Vendors and agencies agree that micros will eventually replace RCS for those requirements which do not require networking, extensive data base interaction, or massive computation.

- For the latter three requirements, micros are expected to serve as distributed processors connected to centralized mainframes.

  - Some RCS vendors have taken advantage of government naivete in understanding requirements and providing inadequate benchmarks. Significant cost overruns have resulted.

- The remote computing services industry has been generally discredited.

- Agencies have been given renewed impetus to find alternative means of data processing.

- GSA has observed agency and vendor disillusionment with the TSP, and is attempting to arrest the decline in the use of the MAS and to resolve the difficulties with the BA.

  - For GFY 1984, significant program changes were made to improve the economy and efficiency:

    - MAS selections for requirements of less than $50,000 per year do not need to consider all MAS contractors.

    - MAS and BA benchmark requirements were reduced.

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- Systems design and programming services were allowed in limited amounts, up to a maximum of 10% of the total annual contract amount or $100,000 per year, through the usage of negotiated task orders.

- Under the MAS, a vendor may offer a "net discount" in addition to those already included in the contract. The net discount is calculated after all other discounts and applies only to the single requirement being considered.

- The session/transaction registers previously required with each MAS vendors' monthly bill are now required only when requested.

- GSA DPA (Delegation of Procurement Authority) approval is no longer required for competitive procurements under $2 million per year or for sole-source procurements under $200,000 per year. (Agencies must still obtain approval on ADP sharing requirements.)

- Under a 1985 FIRMR Temporary Regulation, agencies are permitted to select cost- and risk-effective alternatives to benchmarks.

- Waivers for the use of premium software are no longer required.

- In spite of these changes, the MAS revenues have declined 8.8% in GFY 1984. The BA has shown a modest increase of 8.5%, for an overall TSP growth of 12% (see Exhibit III-5).

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- GSA continues to offer modifications of the TSP in an effort to increase its use and effectiveness.

  - GSA is considering a change in scope of the MAS in GFY 1985 to include dedicated systems. The BA, which already offers this flexibility, is frequently bypassed by agency contractors.

  - Also being considered is the option to offer Distributed Data Processing (DDP) with microcomputer hardware under the MAS.

  - Consideration is also being given to vendor requests for substantial simplification of Section H with its redundancies.

  - Some pressure exists within GSA to terminate the MAS portion of TSP.

- The U.S. Postal Service is, of course, exempt from the TSP, as is the Executive Office of the President, but they use the TSP when it suits their purposes. The dollar volumes being generated by the House of Representatives, the Senate, and the White House for electronic mail, correspondence systems with associated data bases, and word processing systems are substantial.

- OMB issued new security guidelines to comply with the Privacy Act. The MAS has a clause which requiring vendors to comply. The guidelines will require:

  - A security certification.

  - Security maintenance.

  - A security risk analysis.

- These guidelines represent additional expense for MAS vendors and additional obstacles to the already elusive revenues and profits.

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INPUT

- OMB also revised the purpose of OMB Circular A-76.

  - The circular began as the policy of contracting for goals and services with the private sector.

  - Subsequent amendments added a cost comparison handbook and targeted reviews of commercial activities of all agencies.

  - Effective October 1984, A-76 became the basis of the "Productivity Improvement Program" under the REFORM 88 Initiatives.

    - Twenty six categories of job classification are targeted for review, including four ADP labor categories.

    - Annual category head count reviews have been established, so that 130,000 positions will be reviewed by FY 1987. Included are 50,000 ADP positions.

    - Agencies doing cost comparisons for major upgrades or replacements must also seek bids from federal data centers in other agencies in addition to those from vendors.

- The inclusion of the Competition in Contracting Act of 1984 and the Small Business and Federal Procurement Act of 1984 in the FIRMR will also impact the processing services market.

  - The GSA Board of Contract Appeals now has jurisdiction, in addition to GAO, in protests.

  - Any change of procedures, regulations, policy, or form that would affect contractors must be published in advance in the Federal Register.

INPUT

- Sole-source awards are limited to just seven categories, and must be noted in the CBD prior to award (except those affecting national security).

- Protests may be originated by any potential vendor with an economic interest, not just by disappointed bidders.

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IV PROCESSING SERVICES—VENDOR PERSPECTIVES

A. VENDOR OVERVIEW

- Although the number of vendors participating in the federal processing services market has remained relatively stable since the early 1980s, there are changes taking place in 1984 and 1985 which will influence the market shares of the major vendors.

    - Acquisition of services firms by ADP equipment, aerospace, and large industrial corporations is influenced by both general business conditions and new interest in federal information system opportunities.

    - Some processing services vendors are expanding this federal business base into professional services, software products, and integrated systems.

    - Several of the federal RCS vendors also provide facilities management (RFP) and batch processing services to federal clients.

    - The larger RCS vendors with wide-area Value-Added Networks (VAN) increase their revenues through leases to agencies with Wide Area Network (WAN) requirements.

INPUT

- If the OMB translation of Circular A-76 is enforced, all processing services vendors will be competing with entrenched in-house federal data centers.

  - The circular has been retitled "Productivity Improvement Program" as a new element of the administration's REFORM 88 program.

  - Agencies with increasing or new information processing requirements must solicit other agency data centers, as well as industry, for quotes for the cost comparison process.

  - Vendors believe that the resulting cost competition will accelerate migration of more conventional processing services to the province of raw processing power at least possible cost to the federal government.

- The majority of the vendors responding to the survey identified RCS as their primary revenue generator in the federal market, as indicated in Exhibit IV-I.

  - The second largest market segment is processing facilities management (PFM), which is also called COCO (Contractor-Owned, Contractor-Operated), ADP services.

    . A number of larger RCS vendors have moved into PFM as an alternate market.

    . Some large PFM vendors function in classified areas not open to INPUT inquiry.

    . PFM vendors are discussed in greater detail in INPUT's _Federal Facilities Management Report_ (1984).

  - Batch processing is the smallest processing services mode in the federal market, with zero growth projected for the remainder of this decade.

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EXHIBIT IV-1

SOURCE OF FEDERAL REVENUE FOR
PROCESSING SERVICES VENDORS, 1984

(Ranked by Vendor's Estimates of Federal Volume)

VENDOR	Esti-mated Rank	Percentage Split by Service Mode
Boeing	1	28% / 44% / 28%
CDC	2	60% / 35% / 5%
CSC	3	37.5% / 37.5% / 25%
MMDS	4	50% / 50%
GE	5	75% / 15% / 10%
Comnet	6	20% / 20% / 60%
McAuto	7	UNKNOWN
AMS	8	70% / 30%
ADP	9	30% / 20% / 50%
NDC	10	100%
DRI	11	100%
Tymshare	12	90% / 10%
Dialcom	13	100%
Informatics	14	65% / 35%
Bowne	15	100%
STSC	16	95% / 5%
Litton	17	50% / 50%
Comshare	18	100%
Babcock & Wilcox	19	UNKNOWN

0   25   50   75   100%
Percent of Revenues

▨ RCS (Interactive)
☐ BATCH
■ FM

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- Seven of the vendors suveyed reported that batch mode accounted for 30-50% of their federal revenues.

- Most of the vendors believe that in-house PCs and minicomputer centers will absorb batch-oriented surveys and audits conducted biannually or triannually by the Defense and Education departments.

- Vendor revenue estimates exceeded GSA's report of federal processing expenditures for GFY 1983 by 49%.

  - Total agency processing forecasts usually exceed OMB Circular A-11 budgets by nearly 33% each year.

  - Some payment delays attributable to the previous GSA-TSP billing and payment procedures could have delayed 1982 payments until 1983, although they were reported as 1982 obligations by the agencies.

B.   REMOTE COMPUTING SERVICES

- RCS is the largest service mode of the federal processing services market.

  - A major share of federal RCS funds is transferred to the states to support commercial providers of ADP services for insurance, welfare, and compensation claims processing.

  - A minor share supports the GSA Teleprocessing Services Program (TSP) for many of the federal agencies.

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- Exhibit IV-2 shows that 70% of the vendors surveyed obtained more than 50% of their total revenues from RCS in CY 1983.

    - Only 24% indicated less than a quarter of their revenues derived from RCS, and these did not expect to increase substantially RCS revenues.

    - Those vendors who generated more than 75% of their total revenues in 1983 thru RCS plan to diversify into professional services activities.

- Exhibit IV-3, however, indicates that 50% of the vendors surveyed received less than 20% of their RCS revenues from federal contracts.

    - Only 11% reported that 80% or more of their RCS revenues came from federal sources.

    - It is interesting to note that 89% of the vendors claim that less than 60% of 1983 RCS revenues were federally based.

- Vendors surveyed were not consistent in their expectation of federal RCS market growth in the next two to five years, as seen in Exhibit IV-4.

    - Eleven percent expect RCS obligations to decline, in response to increasing federal data center competition or transfer of programs in-house.

    - Six percent projected growth of 40% to 50%, which may be realistic to each individually if current revenues are low.

    - The medium forecast was 12.7%, about the level anticipated in late CY 1983, before the impact of end-user computing (PCs) and DDP was acknowledged.

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EXHIBIT IV-2

PERCENT OF TOTAL REVENUE
DERIVED FROM RCS ACTIVITIES, CY 1983
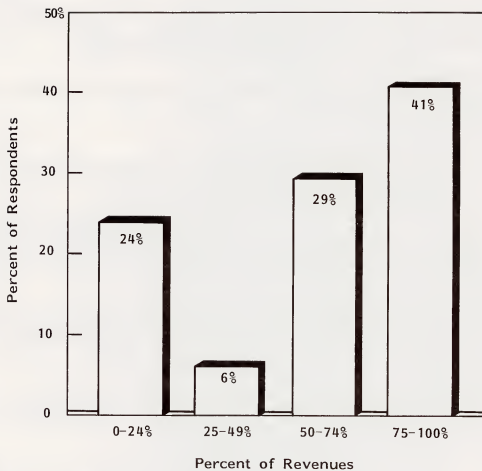
EXHIBIT IV-3

PERCENT OF VENDOR RCS REVENUE DERIVED FROM
FEDERAL GOVERNMENT, CY 1983

INPUT
GPS2
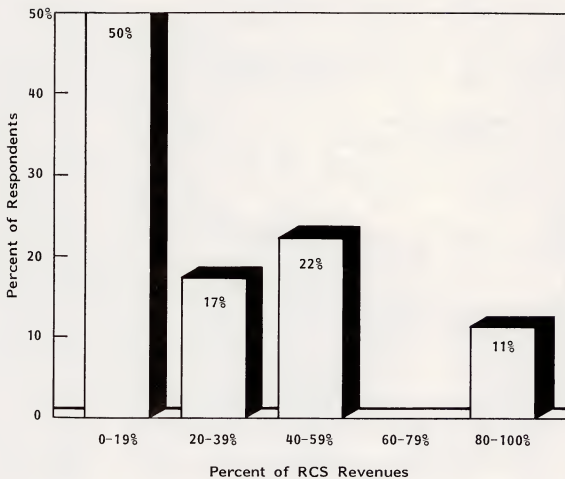
EXHIBIT IV-4

VENDOR EXPECTATIONS
OF FEDERAL RCS MARKET GROWTH,
GFY 1985-1987

- 54 -
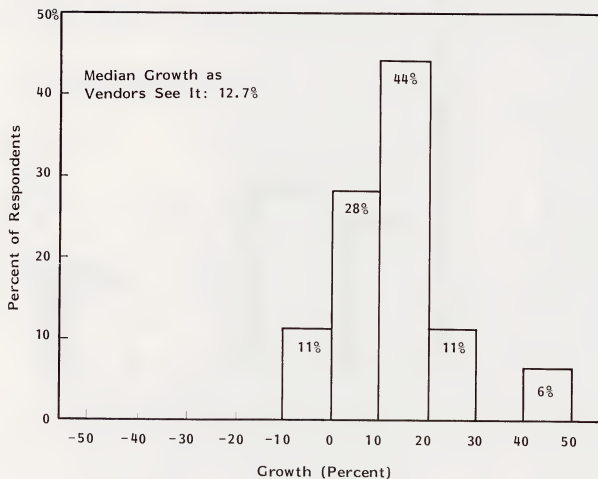
- As indicated in Section III, GSA forecast a 5.5% growth for 1984 to 1986, based on declining MAS contracting.

- Agency responses are markedly different, as noted in Section V.

C.   TELEPROCESSING SERVICES PROGRAMS

- The most competitive and visible federal RCS market is the GSA-managed TSP.

    - Since GFY 1978, a few relatively large RCS vendors have dominated the TSP.

    - Recent mergers, acquisitions, and changes in bidding, resource charging algorithms, and agency requirements have begun to change the vendor rankings.

    - The GFY 1984 overall TSP market shares are listed in Exhibit IV-5.

    - BCS had the highest share of the BA and second highest of the MAS markets, respectively, from some programs subsequently lost in recompetitions.

    - CSC was rated second highest in BA, but fifth in MAS, with the prospect of improved revenues with an award of the Army Keystone Program.

    - CDC improved its MAS position with its acquisition of UIS.

    - Two of the 15 highest overall TSP contractors, DIALCOM and Dun & Bradstreet, reached their positions on the basis of high MAS revenues.

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INPUT

EXHIBIT IV-5

GSA-TSP MARKET SHARE FOR COMBINED
MAS AND BA REVENUE, GFY 1984

RANK	COMPANY	PERCENT SHARE
1	BCS	32.8%
2	CSC	16.6
3	CDC	13.3
4	McAuto	5.1
5	EDS	3.9
6	GEISCO	3.7
7	NDC	3.4
8	DRI	3.2
9	MMDS	3.2
10	NVIP	2.9
11	ADP	2.3
12	COMNET	1.4
13	DIALCOM	1.3
14	D&B	1.1
15	INFORMATICS	0.9

SOURCE: Draft GSA GFY 1984 TSP Report

INPUT
GPS2

- Recent acquisitions and significant upsets in recompetition are changing the complexion of the federal TSP marketshare. Exhibit IV-6 shows market share of the Multiple Award Schedule Contracts (MASC) awarded in FY 1984 recast to reflect these changes.

    - CDC's acquisition of United Information Services (UIS) moved it to the number one position on the MAS, with 23.5% market share in GFY 1984.

    - McDonnel Douglas Automation's (MCAUTO) acquisition of Tymshare improved its market share to 6.4%, moving it to sixth position from an estimated seventh.

    - Electronic Data Systems' absorption of Optimum Systems improved EDS's position to fourth, with 7.2% of the market.

    - Dun and Bradstreet's acquisition of NCSS led to a slip from a preliminary eighth position to a final tenth position, with 2.6% of the market.

    - Fourth quarter changes brought NVIP up to eighth position and 5.3% of the market, AMS to twelfth position with 1.6%, and MMDS to thirteenth with 1.3%.

    - COMNET dropped from a preliminary eleventh position to twenty-third, ADP from tenth to sixteenth, and NDC from fourteenth to eighteenth.

    - A description of hardware offered and percent of revenue derived by each of the MASC vendors is provided in Appendix E.

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EXHIBIT IV-6

MARKET SHARE REPORT - TSP/MASC SHOWING RECENT ACQUISITION RESULTS
AND RELATIVE RANKING OF 17 COMPANIES

COMPANIES	GFY 84 E		GFY 83		GFY 82		GFY 81		GFY 80		GFY 79		GFY 78	
	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
CDC (UIS)	23.5%	1	28.4%	1	26.9%	1	22.6%	2	21.0%	2	15.1%	2	6.2%	2
BCS	19.2	2	27.2	2	21.9	2	19.0	3	17.5	3	11.8	3	3.6	6
GEISCO	7.8	3	5.8	4	4.8	6	4.8	5	5.2	5	5.2	5	5.8	4
EDS (OSD)	7.2	4	–	–	–	–	–	–	–	–	–	–	–	–
CSC	6.8	5	11.8	3	13.1	3	23.2	1	31.8	1	42.4	1	65.5	1
McAUTO (Tymshare) (CSS)	6.4	6	4.8	5	5.3	4	8.0	4	2.3	4	8.8	4	4.2	5
DRI	6.1	7	3.7	6	3.3	7	1.9	7	0.5	–	–	–	–	–
NVIP	5.3	8	–	–	–	–	–	–	–	–	–	–	–	–
DIALCOM	3.0	9	0.9	10	0.5	11	0.1	11	0.3	9	0.2	9	–	–
D&B (NCSS)	2.6	10	2.9	7	5.3	5	4.7	6	1.9	7	1.8	6	5.9	3
IBM	1.8	11	1.4	9	–	–	–	–	–	–	–	–	–	–
AMS	1.6	12	–	–	–	–	–	–	–	–	–	–	–	–
MMDS	1.3	13	–	–	–	–	–	–	–	–	–	–	–	–
UNI-COLL	1.2	14	0.5	12	0.4	12	0.5	10	0.1	10	–	–	–	–
ADP	1.1	16	0.1	13	1.4	9	1.7	8	2.0	6	1.8	7	1.8	7
NDC	0.7	18	0.6	11	0.6	10	–	–	–	–	–	–	–	–
COMNET	0.3	23	2.1	8	1.5	8	1.3	9	1.0	8	0.7	8	0.3	8
Others	4.1	–	9.8	–	5.0	–	12.2	–	11.4	–	12.2	–	6.7	–

(UIS) Organization acquired within past two years
* Details not available, included in "Other"

Source: GSA Contract File

- Changes in bidding strategies for recompetitions and the final year of previous programs contributed to the market share and relative rank of TSP/Basic Agreement vendors in GFY 1984, as indicated in Exhibit IV-7.

  - As noted earlier, BCS' market share in the BA part of the TSP contributed to its first place in the overall TSP.

  - CSC's second position in BA contributed to its lower rank in the overall TSP.

  - Lower reported MAS revenues affected NDC's third position in BA revenue, reaching only seventh position in the overall TSP.

  - CDC's acquisition of United Information Systems and revenue from its Business Improvement and Education Services contributed to its strong fourth rank and 5% share of the market.

  - MCAUTO's acquisition of Tymshare improved its BA rank from its earlier seventeenth rank.

  - EDS's market share in MAS overcame its tenth ranking in BA to bring it to the fifth rank in overall TSP market share.

D. UTILITY OF RCS TO FEDERAL AGENCIES

- Vendors and agencies were asked to identify both the advantages and disadvantages of vendor-furnished RCS to satisfy federal government information processing requirments.

  - Vendors identified 11 advantages to the government (listed in Exhibit IV-8) in using contractor RCS.

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INPUT

EXHIBIT IV-7

GSA-TSP BASIC AGREEMENT MARKET SHARE
AND RANKING, GFY 1984

RANK	COMPANY	PERCENT SHARE
1	BCS	44.0%
2	CSC	24.7
3	NDC	5.5
4	CDC	5.0
5	MMDS	4.7
6	McAuto	4.0
7	ADP	3.2
8	COMNET	2.4
9	INFORMATICS	1.5
10	EDS	1.3
11	NVIP	1.0
12	DRI	0.9
13	COMPUSERVE	0.8
14	Babcock and Wilcox	0.6
15	GEISCO	0.4

SOURCE: Draft GSA GFY 1984 TSP Report

INPUT
GPS2

EXHIBIT IV-8

INDUSTRY VIEW OF THE
ADVANTAGES OF RCS TO FEDERAL GOVERNMENT

BENEFITS	NUMBER OF TIMES MENTIONED
Quality Technical Support	10
Quality of Service	8
Productivity	6
Competitive Cost	6
No Hassle	4
Easier to Justify (Small Dollars)	4
Cost Benefit, Despite Apparent Expense	3
Computing Power Flexibility	3
Get it Done – It Works	3
Good Training Ground	2
Capabilities not Available Internally	1

Total Number of Vendors Sampled: 19

INPUT
GPS2

- Half of the vendors surveyed identified quality technical support as the most significant advantage; only 11% of the agencies agreed.

- Forty percent of the vendors listed quality of services as the second most significant advantage. This category is roughly comparable to that of responsible vendor, which was rated fourth by 11% of the agencies in their interview.

- One-third of the vendors believe that productivity and competitive cost are equally important advantages for the agencies, 11% of the agencies and contractors felt RCS was cheaper, and only 10% agreed with the productivity rating (listed as large volumes of data and responsive on the agency evaluation).

- Fourth in significance, from the vendors' perspectives are no hassle and easier to justify (smaller costs); almost half (46%) of the agencies rated quick implementation as the most important advantage and did not mention justification as an issue.

- Fourteen disadvantages or shortcomings of vendor-furnished RCS were suggested by the vendors, but with less agreement on the more significant issues, as illustrated in Exhibit IV-9.

  - Forty-two percent of the responses identified (agency) difficulty in properly controlling costs and budget as the leading defect of contracting out RCS; 44% of the agencies agreed that unexpected costs was the most significant disadvantage.

  - Vendor pricing algorithms and (agency) problems with the resultant billings and procurement regulations were listed as equally difficult RCS contract problems facing the agencies by

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INPUT

EXHIBIT IV-9

INDUSTRY VIEW OF THE
DISADVANTAGES OF RCS TO FEDERAL GOVERNMENT

SHORTCOMINGS	NUMBER OF TIMES MENTIONED
Difficult to Control Costs and Budget Properly	8
Pricing Algorithms and Problems	4
Procurement Regulations	4
Locked to a Single Vendor	3
Dependence on Telecommunications	3
Do Not Get What They Really Want	2
Lack of Control of Resources and Product	2
Lacks Status Associated With Hardware Buy	2
Cheaper to Buy Hardware	2
Time Lag - Bureaucracy	1
Security of Data	1
No Attempt to Measure Value	1
Cost Too High	1
Business Profits	1

INPUT
GPS2

21% of the vendors; 17% of the agencies identified slow and complex billing as the second most notable disadvantage.

- Sixteen percent of the vendors also believe that being locked to a single vendor and dependence on telecommunications were disadvantages to the agencies, while only 10% of the agencies identified communications as a problem and none were concerned with being locked into a single vendor, except when the vendor underbid and could not deliver.

- Vendors were also asked (as were the agencies) how they believe the agencies would rate their satisfaction in seven significant RCS vendor performance areas, as illustrated in Exhibit IV-10.

  - Vendors think that "uptime"--the availability of RCS to the user over the most continuous time frame--is the major area of agency satisfaction; 77% of the agencies agreed.

  - Response time was selected as the next highest area of client satisfaction by 88% of the respondees; 75% of the agencies concurred with the vendor opinion.

  - About 65% of the vendors believe that delivery of special applications is the third key area of agency's satisfaction; less than half (47%) of the agencies agreed, with this performance area ranking second to the lowest overall.

  - Customer support was selected as the fourth highest area of agency satisfaction with RCS vendor performance; 56% of the agencies felt that support was the third highest area of satisfaction.

INPUT

EXHIBIT IV-10

INDUSTRY VIEW OF AGENCY
DEGREE OF SATISFACTION WITH RCS VENDORS

INPUT
GPS2
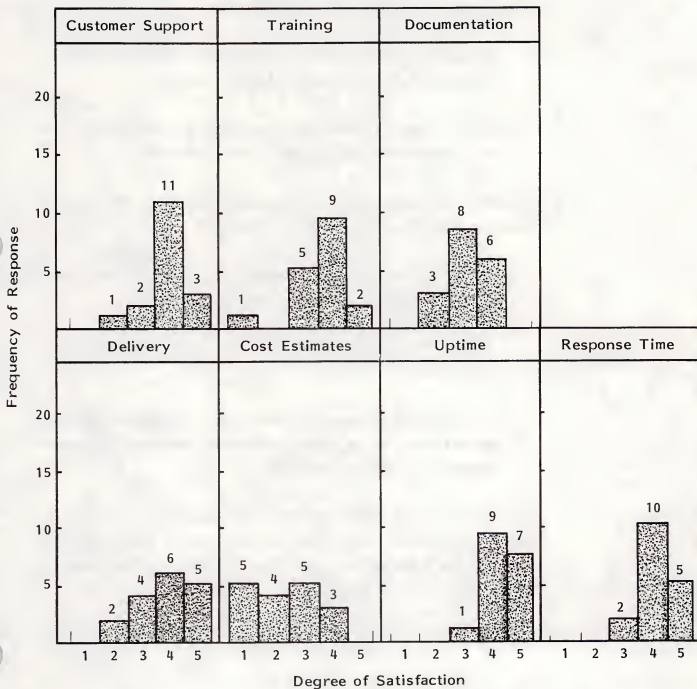
E. APPLICATIONS AND ALTERNATIVES TO RCS

- Vendors identified 16 application areas as their largest revenue producers. Exhibit IV-11 lists the application areas.

  - Data base applications for agency data was identified by both vendors and agencies as the most-used RCS application.

    - Fifty-three percent of the vendors identified this RCS application as producing the largest federal revenues.

    - Fifty-six percent of the agencies agreed as to the frequency of use, with Defense slightly ahead of civil agencies.

  - Financial applications and raw computing power were identified by vendors as the next largest revenue producers.

    - Twenty-one percent of both vendors and agencies listed financial applications as the second most frequently used.

    - The agencies did not comment on "raw computing" as an application area.

    - For 21% of the vendors, the provision of a computing utility that did not focus on any specific application was equal in revenue generation to financial systems.

  - A number of vendors believe that TSP cost competitions that seek to lower the contractor's bid progressively will result in the provision of raw computing power with no application or technical service responsibility on the part of the vendor.

INPUT

EXHIBIT IV-11

APPLICATIONS PRODUCING LARGEST VENDOR FEDERAL REVENUE

APPLICATION AREAS	NUMBER OF TIMES MENTIONED
Agency Data Base	9
Raw Computing	7
Financial	7
Custom Applications	5
Tracking	4
Statistical	2
Proprietary Data Bases	2
Electronic Mail	2
Personnel/Payroll/Recruiting	2
Project Administration	2
Networking	1
Engineering	1
Graphics	1
CAD/CAM	1
Structural Methodology	1
Electronic Publishing	1

INPUT
GPS2

- Inventory tracking was another application with nearly the same percentage of respondent identification.

  . Twenty-four percent of the vendors identified this area as the fifth largest revenue producer.

  . Twenty-three percent of the agencies listed inventory/tracking as the second most-employed application.

- Vendors also projected application areas which would be or have already been lost to alternative means of processing. Exhibit IV-12 is a synopsis of their comments.

  - There is an unexpected overlap between the application areas in Exhibits IV-11 and IV-12, indicating that a major portion of RCS business is vulnerable to possible loss as capabilities of micros and minis continue to increase, and as internal hardware costs continue to decline.

    . Financial applications, particularly spreadsheets, appear to be the most vulnerable, since these can be processed by microcomputers, as noted by the agencies in Exhibit V-8.

    . Large agency data bases now in RCS mode do not appear to either vendors or agencies as being vulnerable to in-house transition in the next several years.

    . Statistical and proprietary data bases, are more vulnerable because they involve more sensitive information with a greater likelihood of frequent management interest, and are amenable to processing on mini- and microcomputer resources.

INPUT

EXHIBIT IV-12

PROJECTED INDUSTRY LOSSES TO ALTERNATIVE PROCESSING

APPLICATION AREA	NUMBER OF TIMES MENTIONED		
	PAST	IN NEXT YEAR	IN 2-5 YEARS
Financial Spread Sheets	6	3	1
Raw Computing	4	3	1
Simple Report Writing	3	–	–
Graphics	3	3	–
Small Data Bases	3	2	–
Statistical	2	–	–
Small Tracking Systems	2	–	–
Applications Development	1	–	–
Word Processing	1	1	2
Engineering	1	3	1
Data Base Management Systems	–	1	4
Electronic Mail	–	–	1
Everything Except Large Data Bases and Networking	–	5	9

INPUT
GPS2

- Cost and control once again headed the list of reasons why RCS applications are lost to alternative means of processing (see Exhibit IV-13).

  - Better internal agency management of ADP resources, including RCS, and the increasing availability of raw technology, principally PCs and hard disks, were the third most noted reasons for the loss to alternative (in-house) resources.

  - Internal pressure, from GSA, agency executives, and civil service unions were listed equally as fourth reasons for the transition.

- Vendors have already experienced the loss of applications to alternative means of processing. Exhibit IV-14 shows the vendor experience—how many applications were lost to which alternatives, and why. Once again, cost and control are the dominant reasons for the change.

  - Exhibit IV-14 for vendors is directly comparable to Exhibit V-9 for the agencies.

  - Both agree that administrative and data base applications have been lost to in-house mainframe resources. Vendors note that "in-house" can mean within the agency and/or to another federal data center.

  - There are somewhat greater differences in applications transition to in-house minicomputers:

    - "Small" applications could include small data bases, spreadsheets, and general purpose processing (vendor equivalent of "raw processing power").

    - Vendors identified personnel and inventory tracking, program development (management), and word processing as likely to transition in-house.

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INPUT

EXHIBIT IV-13

INDUSTRY VIEW OF WHY RCS APPLICATIONS
ARE LOST TO ALTERNATIVE PROCESSING SOURCES

REASONS FOR LOSSES	NUMBER OF TIMES MENTIONED
Cost	15
Internal Control	7
Better Management of ADP	4
New Technology (Micros)	4
Pressure from GSA or Agency	2
Single Location Jobs	2
Government Job Protection	2
Convenience	1
Lack of Value-Added	1
Capacity	1

INPUT
GPS2

EXHIBIT IV-14

RCS APPLICATIONS LOST BY INDUSTRY ALTERNATIVE PROCESSING SOURCES

LOST TO:	IN-HOUSE	MINIS	MICROS	OTHER AGENCIES
Number Lost	8	7	7	4
Application Areas	Program Development	Program Development		
	Personnel Tracking	Personnel Tracking	Statistics	Statistics
	Quality Control	Tracking Systems	Quality Control	
		Word Processing	Word Processing	
	Data Bases	Financial Spread Sheet	Small Business Applications	Data Bases
	Data Bases	Small Data Bases	Financial Applic.	Data Bases
	General Purpose Processing	General Purpose Processing	Budgeting	General Purpose Processing
Reasons	Cost	Cost	Cost	Cost
	Software Available	Control	Control	Internal Directives
	Capacity Available	Capacity Available		

INPUT
GPS2

- Agencies listed operations research, data entry, and administration applications as also likely to transition in-house.

  - Choice of applications to be moved to microcomputers as a prospective change involves a greater divergence of opinion, with financial spreadsheets the only application that is identified by both vendors and agencies.

- But some application areas do not move to alternate forms of processing. In Exhibit IV-15, vendors indicated their understanding of why some applications, even those well within the areas inclined to move off RCS, do not move.

- Four of the proposed reasons cited appear to agree with GSA and agency opinions on reasons for retaining the TSP.

  - Service and support is important to many agencies that have critical shortages of qualified ADP staff and widely varying application demands.

  - Telecommunications capabilities, largely VANs (value-added networks), provide improved and less error-prone data transmission than available through FTS, and are frequently more cost-effective than customized dedicated networks.

  - Agencies in key consumer, citizen service, and congressional support assignments can only meet short-term, high volume requests for data processing support through on-call RCS vendors.

  - GSA and NBS have noted frequently the advantages of vendor-supported software and data bases, which must be maintained to remain competitive.

INPUT

EXHIBIT IV-15

INDUSTRY VIEW OF WHY APPLICATIONS DO NOT MOVE TO
ALTERNATIVE PROCESSING SOURCES

REASONS APPLICATIONS NOT LOST	NUMBER OF TIMES MENTIONED
Service and Support	15
Telecommunications Capabilities and Cost Effectiveness	9
Capacity on Demand	8
Proprietary Software or Data Base	6
Large Data Base	3
Cost Effectiveness	3
Cost of Conversion	2
Inertia	2
Time-Critical Application	1
Back-Up Availability	1
Security of Data	1
Personnel Ceiling	1

INPUT
GPS2

- This list is a menu for those vendors who wish to add value to their RCS business. Nine of the twelve reasons named are solid arguments for the federal government to return access to commercial RCS offerings.

F. PROBLEMS AND HOW TO SOLVE THEM

- Vendors are familiar with the long and tedious process of selling RCS to the federal government. Exhibit IV-16 is a list of the difficulties they have experienced, most of which will probably continue to exist.

- Clearly, selling to the government requires infinite patience, specific knowledge, a corporate commitment, and perseverance.

  - The (unnecessarily) long buying cycle and federal (personnel) incompetence were identified as the most significant problems by 50% of the vendor respondents.

    - Long government buying cycles have been studied, investigated, castigated, and revised for more than two decades, while TSP is only eight years old.

      - Prior MAS and BA acquisitions took, on the average, about nine months.

      - The FY 1985 BIA (Bureau of Indian Affairs) award was accomplished in six months.

      - GSA advised that $40 million in BAs in FY 1985 were expected to be negotiated in six to seven months.

INPUT

EXHIBIT IV-16

MOST SIGNIFICANT INDUSTRY PROBLEMS IN
SELLING TO THE FEDERAL GOVERNMENT

PROBLEMS	NUMBER OF TIMES MENTIONED
Long Buying Cycle	9
Federal Incompetence	9
Knowledge of Procurement	5
Benchmark and Proposal Expertise	3
Slow Payment	2
In-House Bureaucracy	2
Unscrupulous Competition	2
A-76/Brooks Act	2
Cost Image	2
Protests	1
Price as Only Differential	1
Learning About Requirement Too Late	1
In-House "Better"	1
Budgeting - Long Process	1
No Profit	1

INPUT
GPS2

- Federal incompetence may be a vendor perception not supported by facts.

  - Contract offices are bound by a combination of rules, regulations, policies, and precedents of unbelievable complexity and detail.

  - Data users are frequently not data specialists, and there are substantial reasons for their not becoming experts.

  - GSA admits that IG auditors, GAO auditors, and agency administrators know very little about data processing.

- Knowledge, or the lack thereof, of procurements in the program was mentioned by 29% of the respondents.

  - Unless a vendor keeps tabs on all TSP users, he is likely to be caught off guard on both new and recompeted opportunities.

  - Vendors with local sales or representative technical personnel at the sites of major TSP users are more likely to become aware of pending procurements.

- Only 18% of the respondents noted as the fourth most significant problem the need for benchmark and/or proposed expertise, which they either don't have or don't feel a need for.

- The remainder of the problems do not appear widespread, and might be more indicative of vendor failure to prepare to address the federal market than of a real problem to vendors in TSP in general.

- How to improve the MAS and the BA? This question divided the vendors into two separate camps—those who favor the BA and those who favor the MAS.

INPUT

- Exhibit IV-17 details the vendors' suggestions for improving the MAS.

- Seventy-five percent of those responding to the MAS question in the 1984 interviews suggested inclusion of hardware, such as microcomputers.

  - GSA has asked the same question of industry in response to internal disputes on making hardware available on the schedule.

  - Figures were provided by industry that supported the contention that the service was feasible, was already in commercial practice, and would be used by the agencies.

  - GSA was undecided about their response at the time this report went to press.

- Forty-five percent suggested abandonment of MAS as a contracting vehicle.

  - GSA reported continual erosion of MAS volume, as noted elsewhere in this report.

  - An alternate GSA position concerns termination of MAS rather than added micro-mainframe links and microcomputers.

- Thirty-five percent recommended reduction of technical content and paper-work.

  - An ADAPSO subcommittee prepared draft modifications for technical content reduction and elimination of redundancy in January 1985.

  - GSA procurement is convinced, but needs help in explaining the changes to IG auditors.

INPUT

EXHIBIT IV-17

INDUSTRY RECOMMENDATIONS
ON HOW TO IMPROVE THE (TSP) MAS

CHANGES NEEDED	NUMBER OF TIMES MENTIONED
Add Hardware (i.e., Micros)	7
Abandon It - "10-Year-Old Relic"	4
Reduce Technical Content/Paperwork	3
Educate Agencies - "How, When & Why"	1
Relay Certification of Commercial Prices	1
Omit Labor From "Net" Discounts	1
"We Never got a Contract"	1

INPUT
GPS2

- Commercial price certification, net discounts that include nonrelated commercial work scope, and restrictions on technical assistance are being negotiated as reductions to the GPY 1986 MAS.

- Exhibit IV-18 details the vendor suggestions for improving the BA.

    - Five of the six suggestions for change on the BA represent constructive criticism where improvement is possible.

    - The volume of BA revenues is growing at a reasonable rate each year, and there is promise that the BA will continue as a contracting method.

    - FAR and FIRMR rule changes on ADP acceptance procedure have been proposed; if accepted, they would permit agencies to select alternatives to benchmarking.

        . GSA FY 1986 framework discussions include pricing improvements, shorter acquisition cycles, and provision of distributed data processing. No decision was available at this time.

G.   SELLING TO OTHER CONTRACTORS

- Fourteen of the eighteen vendors interviewed have sold remote computer services as a subcontractor to a prime contractor on a federal project. The vendor responses detailing the types of contractors with which they have worked is shown in Exhibit IV-19.

    - Selling through a prime contractor can yield significant revenues without the necessity of the lengthy competitive process or the risk of prime contract performance.

INPUT

EXHIBIT IV-18

INDUSTRY RECOMMENDATIONS ON
HOW TO IMPROVE THE BA

CHANGES NEEDED	NUMBER OF TIMES MENTIONED
Pricing Improvements	6
Benchmark Improvements	3
"Kill It"	2
Takes Too Long – Shorten the Cycle	2
Allow Distributed Data Processing	1
Allow Facilities Management Approach (COCO)	1

INPUT
GPS2

EXHIBIT IV-19

INDUSTRY
EXPERIENCE AS SUBCONTRACTOR TO
PRIME CONTRACTORS ON FEDERAL PROJECTS

TYPES OF PRIME CONTRACTORS	NUMBER OF TIMES MENTIONED
"Small Business" Firms	14
Consulting Firms	14
8A/Minority Firms	12
Professional Services Firms	11
Research and Development Firms	8
Big-8 Accounting Firms	5
Non-Profit Firms (i.e., MITRE Corp.)	3

- Small business and professional services firms appear to need RCS suppliers to provide on-call resources in place of high risk, speculative ADPE investments in the early stages of an opportunity.

H. DISTRIBUTED PROCESSING CAPABILITIES

- Sixteen of the vendors interviewed indicated that they are currently interfacing personal computers with mainframes in their RCS businesses, and two vendors are currently working to provide this interface in the near future.

  - Eight of the vendors believed that RCS revenues would significantly increase if microcomputers could be supplied under the TSP.

  - Ten vendors believe that micros are already available at very reasonable prices to the federal agencies. One of these (Tymshare) was selling micros under Schedule 70 in CY 1984.

  - Four of the eighteen vendors did not in early 1984 offer their distributed processing capabilities to the federal government for various reasons:

    . Offering is too new; needs to be tested before selling to the government.

    . There is no reason to offer the capability unless there is a stated requirement.

    . One vendor offered the capability, but has been repeatedly turned down.

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INPUT

- One vendor commented on the difficult task of marketing distributed processing solutions to the government:

  . "Ultimately it's apt to be a very good market, but in the short run (12 to 24 months), it will be months before GSA will determine how to handle it. The MAS and the Schedule 70 people both think it should be on their schedule, but is there is no procurement vehicle. It's not on the MAS; you can't put processing on Schedule 70, which is for hardware; and you can't put it on the BA. So you can come up with the greatest service in the world and still have no way to market it."

- All vendors agreed that many applications are gravitating toward micros. They have a choice:

  . They can implement the micro-to-mainframe links and reduce revenues by so doing.

  . They can ignore the opportunities and eventually lose all.

- Subsequent to the INPUT survey, in late CY 1984-early 1985, GSA investigated the prospects for providing DDP with microcomputers with industry.

  - ADAPSO survey had a 16% response;

    . Weighted average of 46% of total client base used DDP.

    . Sixty-nine percent of firms offer hardware separately.

    . Fifty percent offered hardware and services as a "bundled" service.

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INPUT

- Micro-based DDP is an established practice in the commercial sector.

- GSA contract research revealed 16 DDP applications in effect or in negotiation since mid CY 1984, valued at nearly $15 million.

  - Six agencies have agreements with eight vendors.

  - Contractors furnish equipment in five of the sixteen agreements.

  - Vendors furnish software in nine of the agreements.

  - Nine agreements are under TSP/MAS, five are under TSP/BA, and two are under separate contracts.

INPUT

V AGENCY VIEWS OF PROCESSING SERVICES

A. FEDERAL AGENCY MARKET OVERVIEW

- Both the executive and legislative branches of the federal government utilize vendor-furnished processing sources.

    - Some part of all 12 cabinet-level departments contracts for data processing services.

    - A number of independent agencies and administrations also use outside processing.

    - At least three public corporations, ICC, TVA, and USPS, use contract data processing.

    - Both the GAO (Government Accounting Office) and GPO (Government Printing Office) in the legislative branch procure outside data processing assistance.

- Federal agencies contract for vendor-furnished data processing services for a variety of reasons, some recurring and some one-time-only.

    - Contract data processing supplements in-house ADP capability during periods of excess demand:

INPUT

- Special periodic events, such as surveys, elections, opinion polls, audits, special studies.

- Unpredictable public access demands for government information products.

- Services to remote workstations, both U.S.-wide and worldwide, from central data bases in a few U.S. locations.

- Distributed data processing provides for mobile or nonfederal site users with irregular demand schedules:

  - DoD recruiting and training schedule data base access.

  - Audit, accounting, and account control programs.

  - Physical reporting systems (weather, crops, minerals, environment).

- Interim facilities replace damaged or nonfunctional federal ADP centers:

  - Temporary processing after catastrophic ADP center damage.

  - Evaluation, emulation, or benchmark facility for design and acceptance of new data systems.

  - Initial capability for a new agency mission, pending design, approval, and implementation of new facilities.

- On-demand facilities for agencies with sporadic data processing workloads that are not sufficient to justify full time ADP resources.

INPUT

B. PROCESSING SERVICES BUDGETS

- Federal agencies acquire data processing services from vendors and other federal data centers on the basis of approved Information Technology budgets each fiscal year:

    - Each agency identifies anticipated expenditures in the OMB Circular A-11 Section 43 budget submission.

        - A comparison of the FY 1983 and 1985 budget requests of the top 15 agencies is shown in Exhibit V-1.

            - HHS, GSA, Army, and Education remain the leading four agencies.

            - Treasury, Navy (including Marine Corps), Air Force, and NASA shifted, but remain the next four in budget size.

            - The remaining seven agencies in the 1985 list were more widely scattered in 1983.

        - Most of the Health and Human Services budget is transferred by the HCFA (Health Care Finance Administration) to the states for repayment for Medicaid and Medicare contracts.

        - GSA's budget includes payments into the ADP fund. The agency spends less than $15 million for outside data processing services to satisfy its own needs.

    - Executive agencies also utilize the ADP fund to acquire outside data processing services and ADPE not funded in the current authorizations.

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INPUT

EXHIBIT V-1

COMPARISON OF LEADING AGENCIES PROCESSING BUDGETS
FOR GFY 1983 VERSUS 1985

AGENCY	FY 1985		FY 1983	
	Rank	$ Millions	Rank	$ Millions
HHS	1	$411.0	1	$341.9
GSA	2	116.0	2	98.2
Army	3	50.0	3	55.0
ED	4	33.2	4	34.8
Treasury	5	26.8	8	7.2
Navy/USMC	6	24.6	5	21.4
USAF	7	13.0	6	9.0
NASA	8	9.8	7	8.5
DOC	9	8.9	10	6.3
VA	10	7.1	15	2.0
DOI	11	6.7	12	5.9
DOA	12	6.1	13	5.0
DOE	13	5.0	11	6.2
DOT	14	4.9	9	7.0
DOJ	15	3.3	14	3.8

SOURCE: FY 1985, 1983 OBM A-11 Section 43A, B Reports

INPUT
GPS2

- A comparison of OMB A-11 ADP services budget requests, GSA-ADP fund expenditures, and TSP (both MAS and BA) expenditures for FY 1983 is shown in Exhibit V-2.

  - Note that several agencies (Army, Navy, Air Force, Transportation) expended more (ADP fund and TSP) than requested in the A-11 Budget.

  - Public corporations such as the U.S. Postal Service, TVA, BPA, and others off-the-budget do not file OMB A-11 budget requests.

  - As noted above, HHS and GSA do not rank near the top in the ADP fund and/or TSP, despite their large data processing budgets.

- The ADP Services portion of the Information Technology budget of the agencies and the ADP fund are the sources of expenditures for all of the processing services segments.

  - RCS represents the largest expenditure component, of which TSP represents only 20-30%.

  - PFM expenditures are the next highest amount of expenditures, with most of the funding coming from agency ADP services budgets, and a smaller portion coming from the GSA ADP fund.

  - Batch processing is frequently provided through either TSP Basic Agreements or separately negotiated competitive contracts.

INPUT

EXHIBIT V-2

COMPARISON OF A-11 BUDGET, GSA-ADP FUNDS, AND
TSP EXPENDITURES BY LEADING AGENCIES, FY 1983

AGENCY	OMB A-11		GSA-ADP FUNDS		TSP (MAS+BA)	
	Rank	$ Millions	Rank	$ Millions	Rank	$ Millions
HHS (HCFA)	1	$341.90	6	$ 4.94	9	$ 5.44
GSA	2	98.20	4	8.19	6	7.20
Army	3	55.00	2	22.98	1	44.80
Education	4	34.80	17	0.48	20	0.48
Navy/USMC	5	21.40	1	33.85	2	20.70
Air Force	6	9.00	5	7.97	7	6.51
NASA	7	8.50	15	1.29	18	1.23
Treasury	8	7.20	8	4.36	10	3.98
Transportation	9	7.00	3	12.84	3	10.49
Commerce	10	6.30	10	2.75	5	7.39
Interior	11	5.90	7	4.68	16	1.42
DOD Agencies	12	5.00	9	3.76	4	9.46
Postal Service	–	–	23	0.17	8	5.75

SOURCE: FY 1983 OMB Circular A-11 Section 43 - Agency Information Technology Budgets.
GSA Records: NEAR System - FY 1983

INPUT
GPS2

C.   PROJECTED GROWTH OF RCS EXPENDITURES

- Fifty-two representatives of 23 different agencies gave widely varying opinions of the growth of federal RCS revenues (see Appendix A for the agency profile of the survey).

    - Within the same agency there were significant variations, depending upon the procurement or the new requirements they had in mind.

    - To consolidate the revenue estimates, the actual revenues were computed for each survey, the growth revenues were added together, and a new consolidated growth rate was computed for each agency. Exhibit V-3 shows the consolidated histogram of the expected growth.

    - The revenue growths anticipated by the agencies are considerably more conservative than those of the industry representatives--a medium growth of 12.7% for the industry representatives (Exhibit IV-4) versus 0.7% for the agencies.

    - Six agencies predicted negative growth--with two of them showing declines of 30% or greater.

- Agency estimation of the distribution of processing services showed that most of the respondents were heavily weighted toward interactive.

    - Exhibit V-4 shows that 18 respondents (51.4%) indicated that more than 75% of their total usage was interactive.

    - Another four respondents (11.4%) indicated that more than 50% of their usage was interactive.

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INPUT

EXHIBIT V-3

AGENCIES' EXPECTATIONS FOR FEDERAL RCS GROWTH
GFY 1985-1990
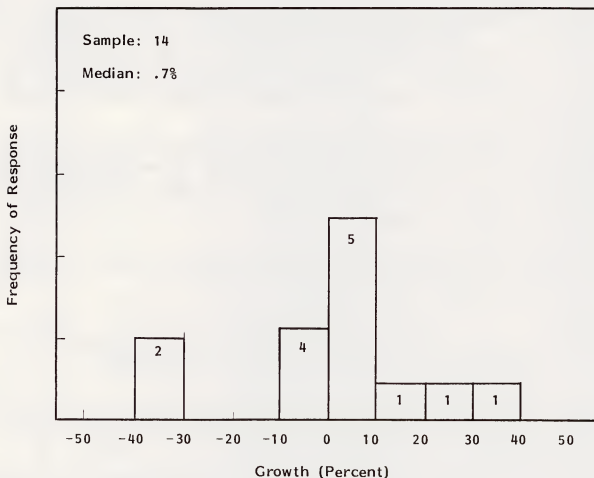
EXHIBIT V-4

PROCESSING SERVICES DISTRIBUTION
INTERACTIVE VERSUS BATCH

INPUT
GPS2

D.   BENEFITS AND PROBLEMS OF RCS

- Agencies listed the benefits of RCS in a different sequence than did the industry representatives, but with much the same emphasis for getting quality work done quickly. Exhibit V-5 lists the benefits in priority order as mentioned by the agencies.

    - Quick implementation was the most frequent benefit, noted by 46% of the respondents.

        . ADP equipment leasing and staffing with in-house resources has, by necessity, built-in time delay factors.

        . "Quick" in the TSP is currently six months for a new agreement, but an internal increase could require two years.

    - Flexibility to expand or contract the services to meet changes in data processing needs was the second most mentioned benefit, noted by 29% of the agencies.

        . Needs vary in response to congressional oversight, administration analysis, and seasonal requirements.

        . Federal data centers cannot be manned on the basis of variable manpower requirements except by some part-time employees, limited by FTE (Full Time Equivalent) ceilings.

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INPUT

EXHIBIT V-5

AGENCY PERCEPTIONS OF THE BENEFITS OF RCS

BENEFITS	NUMBER OF TIMES MENTIONED
Quick Implementation	24
Flexibility to Expand or Contract	15
Specialized Software	9
Vendor Responsible	6
Cheaper	6
No Maintenance	6
Responsiveness	6
Technical Competency of Staff	6
Large Volumes of Data	5
State-of-the-Art Technology	5
Up-Time/Response Time	4
Access	4

- Availability of specialized software from RCS vendors was the third most identified advantage, by 17% of the agencies.

- As noted in Section IV, the remainder of the benefits identified by agencies do not correlate with those indicated by vendors in Exhibit IV-8.

- Exhibit V-6 is a list of shortcomings that agencies mentioned. The list shows a general disillusionment with pricing and performance. Thus, these agency spokesmen perceive that they are paying more dollars for declining performance.

  - Unexpected costs was identified as the most significant RCS shortcoming by 44% of the surveyed agencies, a substantial margin above the second most noted problem.

    - Vendors also acknowledged that cost and budget control and problems with pricing algorithms were serious RCS contracting problems.

    - Agency budget requests were a year or more old by the time a contract is signed.

    - Some agencies have no concept of how much their service requirements will cost.

  - A slow and complex billing process matched the vendor perspective as the second most significant shortcoming.

    - The TSP and its predecessor created the complex billing and payment procedure.

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INPUT

EXHIBIT V-6

AGENCY VIEWS OF SHORTCOMINGS OF RCS

SHORTCOMINGS	NUMBER OF TIMES MENTIONED
Unexpected Cost	23
Billing Slow and Complex	9
Evaluation Difficult	5
Distance Between Computer and User	5
Priority Difficult	4
Performance Weak	3
Service/Customer Support Weak	3
Conversion Difficult	3
Cheap Vendors - Can Not Deliver	1

INPUT
GPS2

- GSA is considering accelerated payment schemes to satisfy both vendor and agency complaints.

- Evaluation difficulties, the the third problem, is closely allied to vendor complaints regarding complex procurement regulations.

  - Annual reviews of the proposed MAS and BA procedures with agencies and vendors mean slow progress in simplifying a bureaucratic process.

- The remainder of the shortcoming do not correlate well with the vendor list, but combined they represent a litany of less-than-significant problems.

- Exhibit V-7 shows histograms of agency level of satisfaction with RCS. Although there are some negative responses (1-2) in every category, the positive responses far outweigh them.

  - Six of the seven categories indicate a relatively high level of satisfaction with RCS vendor performance.

  - The most significant characteristic noted was uptime, selected by 75% of the agencies as well as 95% of the vendors.

  - Response time was voted the second most significant RCS vendor characteristic by both agencies and vendors.

  - Customized support was the third most significant characteristic perceived by the agencies.

    - The trend toward lowest price awards could jeopardize this factor.

INPUT

EXHIBIT V-7

AGENCY DEGREES OF SATISFACTION WITH RCS VENDORS

- 101 -
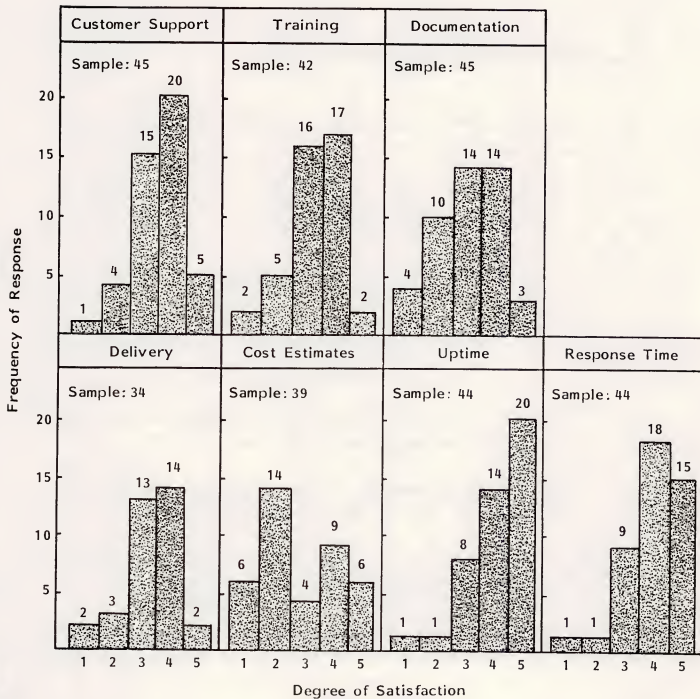
- GSA contracting personnel (and the GSA-IG) are apparently less impressed by support than are the agency clients.

- Only one of the seven histograms, "cost estimates," showed strong dissatisfaction. More than 50% of the respondents registered their dissatisfaction at the one to two level.

E. APPLICATIONS AND ALTERNATIVES TO RCS

- The current (1984) RCS applications named by the agency representatives are listed in Exhibit V-8.

    - Data bases of agency data are most frequently mentioned in both defense and civilian agencies.

    - Inventory control and tracking was the second most frequent application solely within the civilian agencies.

        - The military departments operate in-house logistics systems for the majority of their tracking needs.

        - DoD inventory systems have been the target of several congressional investigations for over a year.

    - Financial applications was identified as the third most popular application by both agencies (21%) and vendors (21%).

    - Administrative and human resources applications had about the same frequency of mention, but DoD was stronger on the latter.

        - In-house DoD personnel systems are overloaded and outdated.

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EXHIBIT V-8

CURRENT AGENCY RCS APPLICATIONS

APPLICATIONS	NUMBER OF TIMES MENTIONED		
	CIVILIAN	DOD	TOTAL
Data Base – Agency Data	22	7	29
Inventory/Tracking	12	–	12
Financial	9	2	11
Administrative	8	1	9
Personnel/Payroll/Recruiting	5	4	9
Econometrics/Economic Models	8	–	8
Budget Information	5	–	5
Simulation/Logistics	2	3	5
Data Base Proprietary	3	–	3
Planning Models/Production Standards	2	1	3
Project Management	1	2	3
Statistical	2	–	2
Engineering Processing	2	–	2
Scientific	2	–	2
Text Processing	1	–	1

INPUT
GPS2

- Recruiting applications with a widespread network of terminals is an ideal RJE application for RCS networks.

  - The list is a veritable marketing menu for vendors to determine which products to present in the federal environment.

- The RCS applications lost to alternate processing, the number of applications lost to each alternative, and the apparent reasons for the loss are noted in Exhibit V-9.

  - The most quoted reasons for loss are cost and control:

    - Cost, as a basis for transfer of applications, appears to be an agency budget concern in most of the transfers.

    - Control, or the lack thereof, by agency personnel while the application was processed by vendors is a frequent complaint of GSA auditors.

  - The mandate of the agency to use in-house facilities principally concerns MIS reports and certain administrative appllictions that appeared to contain "sensitive" agency information.

  - As noted in Section IV, regarding the comparable Exhibit IV-14, both vendors and agencies agree that administrative and data base applications are lost more frequently from RCS to in-house ADP facilities.

    - The degree of sensitivity of agency operating data appears to be a strong factor, as noted above.

    - Transfers to microcomputers are reactions to the long turn-around time to get RCS applications approved and developed,

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INPUT

EXHIBIT V-9

RCS APPLICATIONS LOST FROM INDUSTRY TO ALTERNATIVE PROCESSING

LOST TO	IN-HOUSE	MINIS	MICROS
Number Lost	10	4	8
Application Areas	MIS Reporting Administrative Statistical Data Base	New Applications Administrative Operations Research Data Entry Small Applications	New Applications Procurement System Consumer Price Index Data Entry Small Applications Program Development Spread Sheet
Reasons	Cost, Control Mandate to Use In-House Negative Reaction from GSA	Cost, Control	Cost, Control

especially when agency managers do not have a "final" product in mind.

- Overall, the programs "lost" to the RCS vendors appear to have a greater impact on in-house ADP resource justification (for continuation or upgrade) than those retained in the contractual mode.

• The level of satisfaction of the respondents with RCS versus three alternate processing methods are indicated in Exhibit V-10.

- The varying sample sizes of the four histograms indicate the absence of an opinion of, or experience with, the alternatives to RCS of most of those interviewed.

    . Some respondents noted that transfers of applications were mandated, not made because of dissatisfaction with RCS performance.

    . Others were not exposed to transfers or were not involved in the applications after they moved to in-house ADP resources.

- More of those interviewed indicated greater satisfaction with microcomputer resources, because of improved flexibility and quicker availability, than with the RCS mode.

- The level of satisfaction with in-house minicomputer and mainframe resources is nearly the same, but with some increased dissatisfaction with already heavily scheduled mainframes.

• Exhibit V-11 displays the future applications for which agencies plan to use RCS. Data bases are in first place, especially those with network requirements which appear to be most effective in the RCS environment.

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EXHIBIT V-10

AGENCY LEVELS OF SATISFACTION WITH
RCS VERSUS ALTERNATIVES

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GPS2
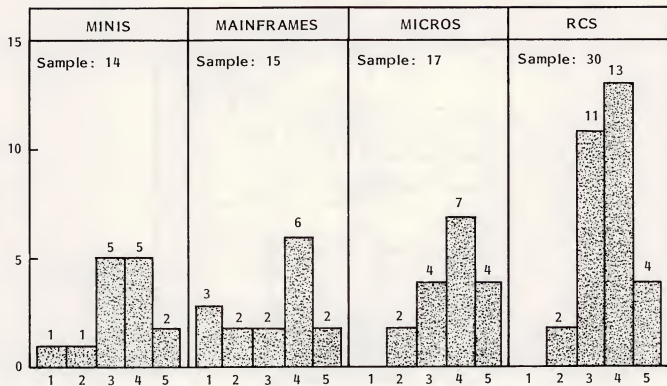
EXHIBIT V-11

AGENCY VIEWS OF
FUTURE APPLICATIONS FOR RCS

	NUMBER OF TIMES MENTIONED
Database with Network	12
New Applications	3
Specialized Software	2
IDMS	1
Administrative	1
Modeling	1
Architectural Design	1
Resource Utilization	1
Military Reclassification	1

- For other applications areas, there is little agreement.

  . "New applications" did not commit to any specific use.

  . "Specialized software" available only by license from RCS vendors was suggested elsewhere as being more significant than is indicated in the exhibit.

F. WAYS TO IMPROVE THE TSP

- Constructive suggestions by the agencies for improvement of TSP, MAS, and BA were few in number, as indicated in Exhibit V-12.

  - Vendors made more constructive suggestions (see Exhibits IV-17 and IV-18).

    . Vendors have responded more frequently to GSA invitations to comment on TSP.

    . GSA appears to the vendors to be sincere in attempts to commercialize the contracting process.

  - A number of agencies are convinced that the TSP process is too bureaucratic and not sufficiently commercialized.

    . Billing algorithms are seen as too complex; agencies lean toward purchase of raw computing power.

    . GSA's handling of the billing process is also seen as central government interference with agency business.

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EXHIBIT V-12

AGENCY VIEWS OF WAYS TO IMPROVE THE TSP

SUGGESTIONS	NUMBER OF TIMES MENTIONED		
	TSP	MAS	BA
Simplify the Process	9	4	4
Eliminate It	1	2	2
Simplify the Billing	1	2	1
Simplify the Algorithms	1	–	1
Get GSA Out of It	1	–	1
Make Agencies Totally Responsible	–	1	–
Lower the Costs	–	1	–
Give Better Instruction on How to Use It	–	1	–

INPUT
GPS2

- A greater percentage of vendors interviewed suggested terminating the teleprocessing services program than did the agencies surveyed.

G. THE DISTRIBUTED PROCESSING APPROACH FOR APPLICATIONS

- Only 12 agency personnel professed any knowledge of applications using the RCS/micro combinations; but of these 12, nine expressed a high level of satisfaction. Exhibit V-13 is a histogram showing the levels of satisfaction of these agency respondents.

    - Twenty-four respondents who had no experience with the RCS/micro approach nevertheless expressed optimism and encouragement. Sample comments included:

        . "Sounds good."

        . "Would like to have more."

        . "Good for networking."

        . "More cost effective."

        . "Many overtake RCS."

        . "Thinking about it in the future."

    - GSA subsequently (1984-1985) investigated the prospect for formally including micro-based DDP in the MAS.

        . In CY 1984-85, six agencies have contracted with eight vendors for some variation of DDP.

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EXHIBIT V-13

AGENCY LEVELS OF SATISFACTION WITH
RCS/MICRO APPROACH FOR APPLICATIONS
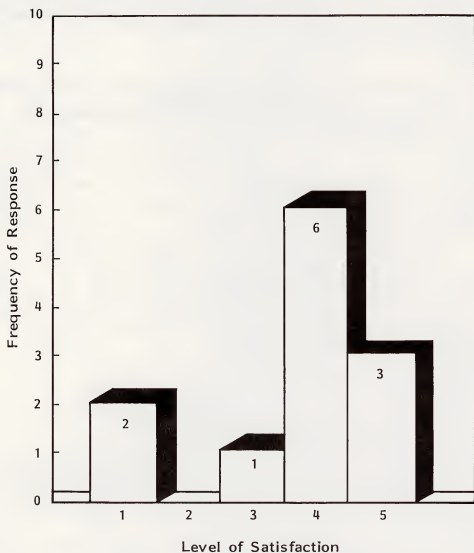
. The contracts are estimated at $15 million total.

. Two of the 16 contracts were executed outside TSP.

H. BUYING RCS THROUGH PRIME CONTRACTORS

• Agency personnel professed little knowledge of RCS contracts through other prime contractors.

- Exhibit V-14 is a list showing subcontract arrangements with which the respondents had some familiarity.

- The availability of RCS subcontracts are better indicated in the vendor responses in Exhibit IV-19.

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EXHIBIT V-14

AGENCY EXPERIENCES WITH RCS THROUGH
SUBCONTRACT TO A PRIME CONTRACTOR

PRIME CONTRACTORS	NUMBER OF TIMES MENTIONED
Professional Services Firms	4
Consulting Firms	3
8A/Minority Firms	2
Research and Development Firms	1

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GPS2

VI CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

- The federal processing services market has matured, as demonstrated by several indicators:

    - Eleven percent AAGR projected for the market overall.

    - Seventy-two percent of available GFY 1984 revenues won by five vendors, two of whom, BCS and CSC, won 50% between them.

    - Seventy-three percent of GFY 1985 outlays are expected from only ten agencies, with four responsible for 53% of the TSP market.

    - RCS AAGR declined to 9%.

    - Vendor population and market shares relatively stable over most of the past decade.

    - Presence of GSA as program manager of the TSP portion of RCS.

- Several recent changes in the marketplace are expected to affect its future direction and size:

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INPUT

- Acquisition of smaller TSP vendors by CDC and McDonnell Douglas improved their market share.

- Vendors are now required to provide security certification without guarantee of a contract.

- RCS market is eroded by increasing end-user computing to offset:

    . TSP contracting process delays.

    . Lack of DDP under current TSP-MAS.

    . Reduction of vendor technical assistance in price-competitive awards.

- GSA efforts to reverse the MAS decline over the three years.

- Change of intent of OMB Circular A-76 by OMB from a "contracting out" of goods and services to a "productivity improvement" program with a recognition of federal data centers as valid bidders for ADP service opportunities.

- Modification of FIRMR to permit agencies to select an acceptance procedure other than benchmarking that matches the risk involved.

- Opportunities for vendors still appear promising over the remainder of this decade, despite the contractual and performance problems.

    - Agencies identified at least 24 data bases with commercial value, as listed in Exhibit VI-1.

        . The list of data bases is not all-inclusive.

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EXHIBIT VI-1

AGENCY DATA BASES OF COMMERCIAL VALUE

AGENCY	DATA BASE
DOA	Crop and Livestock Estimates
DOC	Economic Data for Nation
DOC	Meteorolgical Data
DOC	Fishery Statistic
HHS	Statistics
DOL	Labor Statistics
DOL	Employment Retirement Income Security Act Application
DOT	Transit Properties
DOT	Accident Data
DOT	Boating Safety Manuals
DOT	Boating Data
DOT	Railroad Networks
FCC	Communication Frequency Assignments
FHLBB	Semiannual Data
GAQ	Reports
GAQ	Statistical Data Base
DOEd	Statistics
GSA	Data Base of Procurements
GSA	Schedule Information
GSA	Construction Data
VA	Veteran Population Statistics
NASA	Cosmic Data
Navy	Mailing Lists

INPUT
GPS2

- Some bases are already available from vendors.

- Substantial software and documentation investment could be required.

- The current administration is emphasizing commercialization of services.

- GSA is considering the addition of DDP to the MAS to:

  - Permit micro-to-mainframe links.

  - Permit provision (lease or buy) of microcomputer-based work-stations, including PCs.

  - Recognize the DDP applications currently under contract via BA or independent services.

- Agencies noted that future RCS opportunities include applications that are not desirable in-house, such as:

  - Special data bases (noted above).

  - Proprietary software with desirable features.

  - Special projects requiring quick reaction or available network facilities.

- Budget deficit measures of the administration and Congress could delay a number of ADP capital improvement/replacement projects, forcing use of vendor facilities under PFM or RCS contracts.

INPUT

- Some vendors are using processing services as an entry vehicle to federal professional services, especially systems integration.

B. RECOMMENDATIONS

- Agencies and vendors concurred in the identification of several opportunity areas for the remainder of the 1980s:

    - Small applications in specialized topical services.

    - Network-based large data base systems.

    - Services with proprietary software that is more user-friendly or faster than in-house software.

    - Quick-reaction capability and the capacity to meet agency emergencies, caused by:

        . Data center failure.

        . Special congressional or executive data demand.

        . National or regional disasters.

- Consider and investigate prospects for assuming responsibility for one or more of the data bases with commercial value listed (see Exhibit VI-1).

- Understand that becoming qualified and listed as a potential supplier under the TSP-BA is no guarantee of contracts. Vendors must do the following to win awards.

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- Acquire subject expertise in the targeted agency's functional areas.

- Prepare articulate and concise proposals that answer all RFP questions.

- Develop technically acceptable proposals that do not drive the price up.

- Develop aggressive proposal pricing strategies.

- Larger vendors may wish to consider acquisition of other vendors to enhance market share.

- If not already being offered to commercial customers, develop a micro-based DDP capability that can be sold to federal agencies.

- Look for emulation and RCS service opportunities with prime contractors and systems integration vendors.

- Look for opportunities to convert batch mode applications to RCS or to in-house agency ADP facilities.

- Consider acquisition of an in-place PFM contractor as an effective means of penetrating that market.

- Stay informed on changes in procurement regulations and practices through trade associations, federal publications, technical seminars, or information services.

- Use the TSP as a springboard into the professional services market for available technical services capability.

  - Support programming and analysis efforts.

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- Become a IV&V (independent verification and validation) contractor.

- Provide education and training services on large systems.

- Perform ADP security investigations and audits.

- Provide VAN services.

INPUT

APPENDIX A: **INTERVIEW PROFILES**

A. FEDERAL AGENCIES

1. RESPONDENT PROFILE

Agency	Policy	Buyers	Users	Total
Civil	11	14	15	40
Defense	2	5	5	12
Total	13	19	20	52

- All interviews were conducted by telephone except those with GSA officials, who were interviewed in person.

2. RESPONDENT DEPARTMENTS AND AGENCIES

- Department of Agriculture.

    - Agriculture Research Service.

    - Forest Service.

    - Soil Research Service.

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- Department of Commerce.

    - Office of Information Resource Management.

    - Bureau of Economic Affairs.

    - National Oceanic and Atmospheric Administration.

- Education Department.

    - Student Aid.

- Department of Health and Human Services.

    - Health Care Finance Administration.

    - Social Security Administration.

- Department of Labor.

    - Bureau of Labor Statistics.

    - Employment Standards.

    - Office of Assistant Secretary--Administration.

- Department of Transportation.

    - Office of the Secretary.

    - Federal Aviation Administration.

    - Federal Railway Administration.

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- Urban Mass Transit Authority.

- U.S. Coast Guard.

- Treasury Department.

  - Bureau of Engineering and Printing.

- Federal Communications Commission.

- Federal Home Loan Bank Board.

- General Accounting Office.

- General Services Administration.

  - Public Building Service.

  - Federal Procurement Data System.

  - Office of Finance.

- Interstate Commerce Commission.

- National Aeronautics and Space Administration.

  - Headquarters.

  - Goddard Flight Space Center.

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- U.S. Postal Service.

    - Headquarters.

- Veterans Administration.

    - Headquarters.

- Department of Defense.

    - Office of Assistant Secretary for I&L.

    - Defense Logistics Agency.

    - Defense Supply Service.

    - Department of Army.

    - Department of Air Force.

    - Army Corps of Engineers.

    - Department of Navy.

        . ADPSO.

        . NAVDAC.

        . NMPC.

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B. VENDORS

1. RESPONDENT PROFILE: REMOTE COMPUTING SERVICES

Contract	Executive	Marketing	Total
Telephone	5	14	19
Mail	2	2	4
Total	7	16	23

2. RESPONDENT PROFILE: PROCESSING FACILITIES MANAGEMENT

Contract	Executive	Marketing	Technical	Total
Telephone	5	5	3	13

INPUT

APPENDIX B: DEFINITIONS

• Processing services vendors in the federal government market are generally interested in a wider range of IS products and services than comparable vendors in commercial markets. Alternate service mode terminology employed by the federal government in its procurement process is defined, along with INPUT's regular terms of reference, as shown in Exhibit B-1.

• The federal government's unique nontechnical terminology associated with applications, documentation, budgets, authorization, and the procurement/acquisition process is included in Appendix C: Glossary of Federal Government Acronyms.

A.   SERVICE MODES

• <u>PROCESSING SERVICES</u> - Remote computing services, batch services, and processing facilities management.

  - <u>REMOTE COMPUTING SERVICES (RCS)</u> - Provision of data processing to a user by means of terminals at the user's site(s). Terminals are connected by a data communications network to the vendor's central computer. The most frequent contract vehicle for RCS in the federal government is GSA's Teleprocessing Services Program (TSP). There are four submodes of RCS:

INPUT

FEDERAL INFORMATION SYSTEMS AND SERVICES PROGRAM
SYSTEMS AND SERVICES MODES
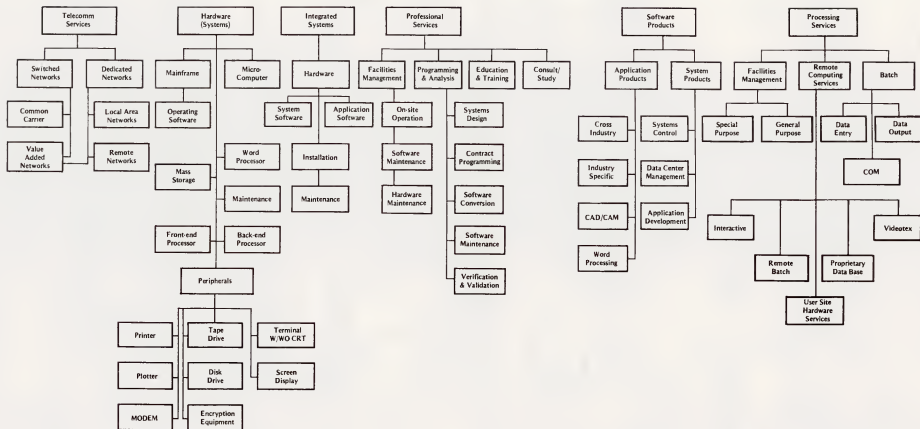
- **INTERACTIVE** (timesharing) - characterized by the interaction of the user with the system, primarily for problem-solving timesharing, but also for data entry and transaction processing: the user is on-line to the program/files.

- **REMOTE BATCH** - Where the user hands over control of a job to the vendor's computer, which schedules job execution according to priorities and resource requirements.

- **PROPRIETARY DATA BASE** - Characterized by the retrieval and processing of information from a vendor-maintained data base. The data base may be owned by the vendor or by a third party.

- **USER SITE HARDWARE SERVICES (USHS)** - These offerings provided by RCS vendors place programmable hardware on the user's site (rather than the EDP center). Some vendors in the federal government market provide this service under the label of Distributed Data Services (DDS). USHS offers:

  - Access to a communications network.

  - Access through the network to the RCS vendor's larger computers.

  - Local management (and storage) of a data base subset that will service local terminal users via the connection of a data base processor to the network.

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- <u>VIDEOTEXT</u> - A variant of interactive RCS.

    . Access may be through cable television systems as well as
      ordinary telephone lines.

    . The display is a television set equipped with a keypad or type-
      writer keyboard and special circuitry.

    . The user may not create programs on the remote computer.

    . The user may query or enter transactions to the remote cojputer
      through menu-driven software.

    . Prestel and QUBE are examples of videotext.

- <u>PROFESSIONAL SERVICES</u> - Made up of services in the following categories:

    - <u>CONSULTING SERVICES</u> - Information systems and/or services,
      management consulting, program assistance (technical and/or manage-
      ment), feasibility analyses, and cost/effectiveness trade-off studies.

    - <u>EDUCATION/TRAINING SERVICES</u> - Products and/or services related
      to ISS for the user, including CAI (computer-aided instruction), CBE
      (computer-based education), and vendor instruction of user personnel in
      operations, programming, and maintenance.

    - <u>OPERATION AND MAINTENANCE</u> (also referred to as O&M) -
      Contractor (vendor)-staffed support of client ADP/telecommunications
      equipment on-site (on government property), in cases where the vendor
      does not manage the complete facility and the equipment and initial
      software suite may not have been provided by the vendor.

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- <u>MAINTENANCE (HARDWARE AND/OR SOFTWARE)</u> - Vendor-furnished services provided after installation and acceptance by the user. These services may be part of a warranty or may be separately contracted; services may be provided by resident or on-call personnel of the vendor.

- <u>PROGRAMMING AND ANALYSIS</u> - Including system design, contract or custom programming, code conversion, independent verification and validation (also called "IV&V"), benchmarking, and software maintenance.

- <u>PROFESSIONAL SERVICES FACILITIES MANAGEMENT (PSFM)</u> (also referred to as GOCO - Government-Owned/Contractor-Operated) - The counterpart to processing facilities management, except that the computers are owned or leased by the government, not the PSFM vendor, and the vendor provides the staff to operate, maintain, and manage the government's facility.

- <u>SYSTEMS INTEGRATION</u> - Services associated with systems design, integration of computing components, installation and government acceptance of ADP/telecommunications systems. System components may be furnished by separate vendors to the government (not as an integrated system by one vendor, called the prime contractor); services may be furnished by a vendor, a nonprofit organization, or another government agency. Integration services may be provided with related engineering activities, such as SE&I (Systems Engineering and Integration) or SETA (Systems Engineering and Technical Assistance).

- <u>SYSTEMS PRODUCTS</u> - Software that enables the computer/communications system to perform basic functions. They consist of:

  . <u>SYSTEMS CONTROL PRODUCTS</u> - Function during applications program execution to manage the computer system resource.

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INPUT

Examples include operating systems, communication monitors, emulators, and spoolers.

. <u>DATA CENTER MANAGEMENT PRODUCTS</u> - Used by operations personnel to manage the computer system resources and personnel more effectively. Examples include performance measurement, job accounting, computer operations scheduling, and utilities.

. <u>APPLICATION DEVELOPMENT PRODUCTS</u> - Used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Examples include languages, sorts, productivity aids, compilers, data dictionaries, data base management systems, report writers, project control systems, and retrieval systems.

- <u>THIRD-PARTY MAINTENANCE</u> - Hardware/equipment maintenance sources, usually provided "on call" by a vendor other than the original manufacturer.

B.   USE OF PROCESSING SERVICES

- <u>TRANSACTION PROCESSING</u> indicates those services where the primary or predominant purpose of the application is to process transactions, usually in a highly repetitive fashion. Most business accounting fits into this category. Payroll, accounts receivable, order entry, portfolio accounting, and inventory control are all good examples of transaction processing.

  - <u>INFORMATION ANALYSIS</u> services are processing services where the primary or predominant purpose of the application is to convert data into information through the use of mathematical, statistical, or finan-

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INPUT

cial analysis tools that readily and easily display the results in report or graphical form. The tools may be rapidly adapted to address a variety of nonrepetitive problems. These tools are often in the areas of financial analysis, marketing, planning, and statistical analysis. Many of the techniques incorporated have their origins in scientific and engineering applications, which also generally fall within this category.

-   USER DATA BASE MANAGEMENT services are processing services where the primary or predominant purpose of the application is to organize and maintain a data base of user information in a manner that facilitates its rapid and efficient retrieval and display according to user-defined parameters, either in ad hoc or fixed form.

-   VENDOR DATA BASE services are processing services where the primary or predominant purpose of the application is to retrieve and/or process data supplied by the vendor who controls access to it (although it may be owned by a third party). There are two modes of delivery of this service:

    .   INQUIRY data base services provide a means of selection and retrieval of data only. They neither provide, nor usually allow, for the subsequent processing of the data. Stock market statistics, news services, and bibliographic data bases are commonly offered in this mode.

    .   APPLICATION PROCESSING services, in addition to providing a means of selection and retrieval, also provide a means of further processing the data into information through the full use of information analysis tools and data base management systems which permit the merging of vendor data with user data. Demographic, marketing, and financial and economic data bases are commonly offered in this mode.

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C.   HARDWARE/HARDWARE SYSTEMS

- **HARDWARE** - Includes all ADP and telecommunications equipment that can be separately acquired by the government, with or without installation by the vendor; the equipment is not acquired as part of a system.

  - **PERIPHERALS** - Includes all input, output, communications, and storage devices, other than main memory, that can be locally connected to the main processor and generally cannot be included in other categories, such as terminals.

- **INPUT DEVICES** - Includes keyboards, numeric pads, card readers, bar-code readers, lightpens and trackballs, tape readers, position and motion sensors, and A-to-D (analog-to-digital) converters.

- **OUTPUT DEVICES** - Includes printers, CRTs, projection television screens, microfilm processors, digital graphics, and plotters.

- **COMMUNICATION DEVICES** - Modems, encryption equipment, special interfaces, and error control.

- **STORAGE DEVICES** - Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, drums, solid state (integrated circuits), and bubble and optical memories.

  - **TERMINALS** - There are three types of terminals used in federal government systems:

    - **USER PROGRAMMABLE** (also called "intelligent terminals"):

      - Single-station or standalone.

INPUT

- Multistation-shared processor.

- Teleprinter.

- Remote batch.

. USER NONPROGRAMMABLE:

- Single-station.

- Multistation-shared processor.

- Teleprinter.

. LIMITED FUNCTION - Originally developed for specific needs, such as POS (point of sale), inventory data collection, controlled access, etc.

- HARDWARE SYSTEMS - For the purposes of this report, hardware systems include all processors, from microcomputers to super (scientific) computers. Hardware systems require type- or model-unique operating software to be functional, but the category excludes applications software and peripheral devices, other than main memory and processors or CPUs not provided as part of an integrated (turnkey) system.

- MICROCOMPUTER - Combines all of the CPU, memory, and peripheral functions of an 8- or 16-bit computer on a chip, in the form of:

. Integrated circuit package.

. Plug-in board with more memory and peripheral circuits.

. Console, including keyboard and interfacing connectors.

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.   Personal computer with at least one external storage device directly addressable by CPU.

.   An embedded computer, which may take a number of shapes or configurations.

-   <u>MINICOMPUTER</u> - Usually a 12-, 16- or 32-bit computer, which may be provided with limited applications software and support and may represent a portion of a complete large system.

    .   Personal business computer.

    .   Small laboratory computer.

    .   Nodal computer in a distributed data network, remote data collection network, connected to remote microcomputers.

-   <u>MIDICOMPUTER/MAINFRAME CPU</u> - Typically a 32- or 64-bit computer with extensive applications software and a number of peripherals in standalone or multiple CPU configurations for business (administrative, personnel, and logistics) applications; also called a General-Purpose Computer.

-   <u>LARGE COMPUTER</u> - Presently centered around storage controllers, but likely to become bus-oriented and to consist of multiple processors (CPUs) or parallel processors; they are intended for structured mathematical and signal processing, and are generally used with general-purpose von Neumann-type processors for system control.

-   <u>SUPER COMPUTER</u> - High-powered processors with numerical processing throughput that is significantly greater than the largest general-purpose computers, with capacities in the 10-50 MFLOPS (million floating point operations per second) range, in two categories:

INPUT

- **REAL TIME** - Generally used for signal processing in military applications.

- **NONREAL TIME** - For scientific use, with maximum burst-mode (not sustained speed) capacities of up to 100 MFLOPS, in one of three configurations:

  - Parallel processors.

  - Pipeline processor.

  - Vector processor.

- Newer super computers, with burst modes approaching 300 MFLOPS, main storage size up to 10 million words, and on-line storage in the one-to-three gigabyte class, are labelled Class IV to VI in agency long-range plans.

- **EMBEDDED COMPUTER** - Dedicated computer system designed and implemented as an integral part of a weapon or weapon system, or platform, or is critical to a military or intelligence mission, such as command and control, cryptological activities, or intelligence activities. Characterized by MIL SPEC (military specification) appearance and operation, limited but reprogrammable applications software, and permanent or semipermanent interfaces. May vary in capacity from microcomputers to parallel-processor computer systems.

INPUT

D.   TELECOMMUNICATIONS

- **CHANNEL BANDWIDTH** - Pass-band frequency range that determines the maximum transfer rate (baud, bits-per-second, kilobits-per-second, megabits-per-second) of data, text, or voice.

  - **BASEBAND** - Voice bandwidth (4 KHZ) at voice frequencies (same as telephone, teletype system), limited to a single sender at any given moment and limited to speeds of 75 to 1,200 baud, in serial mode.

  - **BROADBAND** - A general term used to describe bandwidths greater than a voice grade channel. May be a single channel or employ multiplexing techniques to increase the number of channels in the carrier frequency between terminals.

    - Multiple (simultaneous) channels via FDM (Frequency Division Multiplexing).

    - Multiple (time-sequenced) channels via TDM (Time Division Multiplexing).

    - Single channel for high-speed data transfer rate via parallel mode at rates of up to 96,000 baud (or higher, depending on media).

- **NETWORKS** - Interconnection services between computing resources. Provided on a leased basis by a vendor to move data and/or textual information from one or more locations to one or more locations.

  - **COMMON CARRIER NETWORK (CCN)** - Provided via conventional voice-grade circuits and through regular switching facilities (dial-up

INPUT

calling) with leased or user-owned modems (to convert digital information to voice-grade tones) for transfer rates between 150 and 1,200 baud. (Also called a Public Network.)

- **DEDICATED NETWORK** - Provides full-period, nonswitched, continuously connected communications between computing resources, with machine-to-machine traffic flow.

    - Full-period, continuously connected communications interface, with machine-to-machine traffic flow.

- **LOCAL-AREA NETWORK (LAN)** - Restricted limited-access network between computing resources in a relatively small (but not necessarily contiguous) area, such as a building, complex of buildings, or buildings distributed within a metropolitan area. May be either baseband or broadband bandwidth.

- **SWITCHED NETWORK** - Provides for interconnection between end-user terminals or facilities of either direct electrical interchange or the transfer of information by intermediate means.

    - **CIRCUIT-SWITCHED** - Provides real time connection between originator and destination by network path established initially by originator information.

    - **MESSAGE-SWITCHED** - Similar to the dedicated network in message delivery methods, but not restricted to a single user.

    - **MESSAGE TOLL SWITCHED** - Long distance message communications which provide text/data flow between specified CPUs or terminals, as determined by information included in the header (front-end) of the message or data block.

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<u>PACKET-SWITCHED</u> - Provides means for delivery of pre-determined blocks of data/text through a common-carrier-type switched network.

<u>SHARED (NETWORK)</u> - Uses concentrators to permit a number of input channels to share dynamically a smaller number of circuits on a demand basis for increased transmission economies.

<u>VALUE ADDED NETWORK (VAN)</u> - Typically uses common carrier network transmission facilities and augments these facilities with computerized switching. These networks have become associated with packet-switching technology because the public VANs which have received the most attention (Telenet and TYMNET) employ packet-switching techniques.

<u>WIDE AREA NETWORK (WAN)</u> - Another version of a dedicated network of terminals, PCs, word processors, and CPUs that are not in close proximity but may be dispersed over a wide geographic area that are leased or owned by the user(s).

- <u>PRIVATE LINE (PL)</u> - A full-period, analog, point-to-point communications channel which typically accommodates data transmission at rates up to 9,600 bits per second. "Wideband" channels of up to 56,000 bits per second are also available. Examples include:

  - <u>DDS (DATAPHONE DIGITAL SERVICE)</u> - A fully digital communications service offered by AT&T since 1974 as a private line, interstate, data transmission offering.

  - <u>DTS (DIGITAL TERMINATION SYSTEM)</u> - A class of microwave-based systems intended as alternative to conventional wired local communications methods. Transmission speeds up to 1.544 megabits per second are possible. Conceived as a technological alternative to wire line

INPUT

local loops, which have a maximum practical throughput of 9,600 bits per second. First proposed as Xerox's XTEN network.

- **PROTOCOL** - Required for bit synchronization so that the receiver knows when a bit starts and ends, allowing it to be sampled; for character synchronization so that the receiver can determine which bits belong to a character; and for message synchronization so that the receiver can recognize the special character sequences which delineate messages.

- **TRANSMISSION MEDIA** - Varies with the supplier (vendor) and with the distribution of the network and its access mode to the individual computing resource location.

  - MODE - may be either:

    - **ANALOG** - Typified by the predominantly voice-grade network of AT&T's DDD (Direct Distance Dialing) and by operating telephone company distribution systems.

    - **DIGITAL** - Where voice, data, and/or text are digitized into a binary stream.

  - MEDIA varies with distance, availability, and connectivity:

    - **WIRE** - Varies from earlier single-line teletype networks to two-wire standard telephone (twisted pair) and balanced line to four-wire full-duplex balanced lines.

    - **CARRIER** - Multiplexed signals on two-wire and four-wire networks to increase capacity by FDM.

    - **COAXIAL CABLE** - HF (High Frequency) and VHF (Very High Frequency), single frequency, or carrier-based system that

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requires frequent reamplification (repeaters) to carry the signal any distance.

- MICROWAVE - UHF (Ultra High Frequency) multichannel, point-to-point, repeated radio transmission, also capable of wide frequency channels.

- OPTICAL FIBER - Local signal distribution systems employed in limited areas, using light-transmitting glass fibers with TDM for multichannel applications.

- SATELLITES - Synchronous earth-orbiting systems that provide point-to-point, two-way service over significant distances without intermediate amplification (repeaters), but require suitable groundstation facilities for up- and down-link operation.

- CELLULAR RADIO - Network of fixed, low-powered, two-way radios that are linked by a computer system to track mobile phone/data set units; each radio serves a small area called a cell. The computer switches service connection to the mobile unit from cell to cell as the unit moves among the cells.

E.   GENERAL TERMS

- BENCHMARK - Method of testing proposed ADP system solutions for a specified set of functions (applications) employing simulated or real data inputs under simulated operating conditions.

- BILLING ALGORITHM - Mathematical formula which computes computer resource units used by/for an activity (of a client).

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- **BYTE** - Approximately equivalent to the storage required for one alpha-numeric character (i.e., one letter or number).

- **CENTRAL PROCESSING UNIT (CPU)** - The arithmetic and control portion of a computer; i.e., the circuits controlling the interpretation and execution of computer instructions.

- **CONSTANT DOLLARS** - Growth forecasts in constant dollars make no allow-ance for inflation or recession. Dollar value based on the year of the forecast unless otherwise indicated.

- **COMPUTER SYSTEM** - The combination of computing resources required to perform the designed functions, and which may include one or more CPUs, machine room peripherals, storage systems, and/or applications software.

- **CONCENTRATOR** - Electronic devices that permit a number of communica-tion channels to share a smaller number of transmission channels.

- **CONUS** - Locations within the geographical limits of the CONtinental United States.

- **CURRENT DOLLARS** - Estimates or values expressed in current-year dollars, which, for forecasts, would include allowance for inflation.

- **DDS (DATAPHONE DIGITAL SERVICE)** - Fully digital communications service offered by AT&T since 1974 as a private line, interstate, data trans-mission offering.

- **DATA ENCRYPTION STANDARD (DES)** - A specified encryption algorithm implemented by hardware design and used to protect data when stored in or transmitted between user locations.

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- **DISTRIBUTED DATA PROCESSING** - Distributed processing is the deployment of programmable intelligence, through computers and terminals arranged in a telecommunications network adapted to the user's characteristics, in order to perform a data processing function where it can be accomplished most effectively.

- **DTS (DIGITAL TERMINATION SYSTEM)** - Class of microwave-based systems intended as an alternative to conventional wired local communication methods.

- **EMBEDDED COMPUTER** - Computer system that is an integral part of a weapon, weapon system, or platform, or is critical to the direct fulfillment of a military or intelligence mission.

- **ENCRYPTION** - Electrical, code-based conversion of transmitted data to provide security and/or privacy of data between authorized access points.

- **END USER** - One who is using a product or service to accomplish his/her own functions. The end user may buy a system from the hardware supplier(s) and do his/her own programming, interfacing, and installation. Alternately, the end user may buy a turnkey system from a systems house or hardware integrator, or may buy a service from an in-house department or external vendor.

- **ENGINEERING CHANGE NOTICE (ECN)** - Product changes to improve the product after it has been released to production.

- **ENGINEERING CHANGE ORDER (ECO)** The follow-up to ECNs. They include parts and a bill of material to effect the change in hardware.

- **EQUIPMENT OPERATORS** - Individuals operating computer control consoles and/or peripheral equipment (BLS definition).

INPUT

- <u>FIELD ENGINEER (FE)</u> - Field engineer, customer engineer, servicemen, and maintenance men are used interchangeably and refer to the individual who responds to a user's service call to repair a device or system.

- <u>GENERAL-PURPOSE COMPUTER SYSTEM</u> - A computer designed to handle a wide variety of problems; includes machine room peripherals, systems software, and small business systems.

- <u>HARDWARE INTEGRATOR</u> - Develops system interface electronics and controllers for the CPU, sensors, peripherals, and all other ancillary hardware components. The hardware integrator may also develop control system software, in addition to installing the entire system at the end-user site.

- <u>INDEPENDENT SUPPLIERS</u> - Suppliers of machine room peripherals; usually do not supply general-purpose computer systems.

- <u>INFORMATION PROCESSING</u> - Data processing as a whole, including use of business and scientific computers.

- <u>INSTALLED BASE</u> - Cumulative number or value (cost when new) of computers in use.

- <u>KEYPUNCH OPERATORS</u> - Individuals operating keypunch machines (similar in operation to electric typewriters) to transcribe data from source material onto punch cards.

- <u>MACHINE REPAIRERS</u> - Individuals who install and periodically service computer systems.

- <u>MACHINE ROOM PERIPHERALS</u> - Peripheral equipment that is generally located close to the central processing unit.

INPUT

- **MAINFRAME** - The central processing unit (CPU, or units in a parallel processor) of a computer that interprets and executes computer (software) instructions.

- **MEAN TIME TO REPAIR** - The mean of the elapsed times from the arrival of the field engineer on the user's site until the device is repaired and returned to the user.

- **MEAN TIME TO RESPOND** - The mean of elapsed times between when the user calls for service and when the field engineer arrives at the user's location.

- **MESSAGE** - A communication intended to be read by a person. The quality of the received document does not have to be high, only readable; graphic materials are not included.

- **MODEM** - A device that encodes information into electronically transmittable form (MODulator) and restores it to original form (DEModulator).

- **MULTIDROP** - A single line connecting remote stations, terminals, and PCs to a central facility or host computer.

- **MULTIPLEX** - Transmission of a number of different messages simultaneously over a single circuit or transmission path by frequency (Frequency Division Multiplexing (FDM)) or time distribution (Time Division Multiplexing (TDM)).

- **NETWORK** - Electronic interconnection between a central computer site and remote locations; it may incorporate switching and/or regional data processing nodes.

- **NODE** - Connection point of three or more independent transmission points, which may provide switching or data collection.

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- **OFF-LINE** - Pertaining to equipment or devices that can function without direct control of the central processing unit.

- **ON-LINE** - Pertaining to equipment or devices under direct control of the central processing unit.

- **OVERSEAS** - Not within the geographical limits of the continental United States, Alaska, Hawaii, and U.S. possessions.

- **PERIPHERALS** - Any unit of input/output equipment in a computer system, exclusive of the central processing unit.

- **PRIVATE LINE (PL)** - Full-period, analog, point-to-point communications channel.

- **PROGRAMMERS** - Persons mainly involved in designing, writing, and testing of computer software programs.

- **PROTOCOLS** - Digitally encoded instructions for computer-controlled digital switches in digital (data/text) networks that define treatment and identify sender and receiver.

- **SCIENTIFIC COMPUTER SYSTEM** - A computer system designed to process structured mathematics, such as Fast Fourier Transforms, and complex, highly redundant information, such as seismic data, sonar data, and radar, with large on-line memories and very high capacity throughput.

- **SECURITY** - Physical, electrical, and computer (digital) coding procedures to protect the contents of computer files and data transmission from inadvertent or unauthorized disclosure, to meet the requirements of the Privacy Act and national classified information regulations.

- **SOFTWARE** - Computer programs.

INPUT

- **SUPPLIES** - Includes materials associated with the use or operation of computer systems, such as print-out paper, keypunch cards, diskette packs, etc.

- **SYSTEMS ANALYST** - Individual who analyzes problems to be converted to a programmable form for application to computer systems.

- **SYSTEMS HOUSE** - Vendor that acquires, assembles, and integrates hardware and software into a total turnkey system to satisfy the data processing requirements of the end user. The vendor may also develop system software products for license to end users. The systems house vendor does not manufacture mainframes.

- **SYSTEMS INTEGRATOR** - Systems house vendor that develops systems interface electronics, application software, and controllers for the CPU, peripherals, and ancillary subsystems, that may have been provided by a contractor or the government (GFE). This vendor may either supervise or perform the installation and acceptance testing of the completed system.

- **TURNKEY SYSTEM** - System composed of hardware and software integrated into a total system designed to completely fulfill the processing requirements of a single application.

- **VERIFICATION AND VALIDATION** - Process for examining and testing applications (and special systems) software to verify that it operates on the target CPU and performs all of the functions specified by the user.

F.   OTHER CONSIDERATIONS

- When questions arise as to the proper place to count certain user expenditures, INPUT addresses the questions from the user viewpoint. Expenditures are then categorized according to what the users perceive they are buying.

INPUT

APPENDIX C: GLOSSARY OF FEDERAL ACRONYMS

- The federal government's procurement language uses a combination of acronyms, phrases, and words that is further complicated by different agency definitions. Terms of accounting, business, economics, engineering, and law are further complicated by new applications and technology.

- Acronyms and contract terms that INPUT encountered most often in program documentation and interviews for this report are included here, but this glossary should not be considered all inclusive. Federal procurement regulations (DAR, FPR, FAR, FIRMR, FPMR) and contract terms listed in RFIs, RFPs, and RFQs provide applicable terms and definitions.

- Federal agency acronyms have been included to the extent they are employed in this report.

A.   ACRONYMS

- AAS   Automatic Addressing System.
- AATMS   Advanced Air Traffic Management System.
- ACO   Administrative Contracting Offices (DCAS).
- ACS   Advanced Communications Satellite (formerly NASA 30/20 GH$_z$ Satellite Program).
- ACT-1   Advanced Computer Techniques (Air Force).

INPUT

- Ada — DoD High-Order Language.
- ADA — Airborne Data Acquisition.
- ADL — Authorized Data List.
- ADP — Automatic Data Processing.
- ADPE — Automatic Data Processing Equipment.
- ADS — Automatic Digital Switches (DCS).
- AFA — Air Force Association.
- AFCEA — Armed Forces Communications Electronics Association.
- AGE — Aerospace Ground Equipment.
- AIP — Array Information Processing.
- AMPE — Automated Message Processing Equipment.
- AMPS — Automated Message Processing System.
- AMSL — Acquisition Management Systems List.
- ANSI — American National Standards Institute.
- AP(P) — Advance Procurement Plan.
- Appropriation — Congressionally approved funding for authorized programs and activities of the Executive Branch.
- APR — Agency Procurement Request.
- ARPANET — DARPA Network of interconnected scientific computers.
- ATLAS — Abbreviated Test Language for All Systems (for ATE-Automatic Test Equipment).
- AUSA — Association of the U.S. Army.
- Authorization — In legislative process: programs, staffing, and other routine activities must be approved by Oversight Committees before the Appropriations Committee will approve the money from the budget.
- AUTODIN — AUTOmatic DIgital Network (of the Defense Communications System).

- BA — Basic Agreement.
- BAFO — Best And Final Offer.
- Base level — Procurement, purchasing, and contracting at the military installation level.

INPUT

- BCA — Board of Contract Appeals.
- Benchmark — Method of evaluating ability of a candidate computer system to meet user requirements.
- Bid protest — Objection (in writing, before or after contract award) to some aspect of a solicitation by a valid bidder.
- BML — Bidders Mailing List - qualified vendor information filed annually with federal agencies to automatically receive RFPs and RFQs in areas of claimed competence.
- BOA — Basic Ordering Agreement.
- B&P — Bid and Proposal - vendor activities in response to government solicitation/specific overhead allowance.
- BPA — Blanked Purchase Agreement.
- BPE — Best Preliminary Estimate.
- Budget — Federal Budget, proposed by the President and subject to Congressional review.

- C^2 — Command and Control.
- C^3 — Command, Control, and Communications.
- C^4 — Command, Control, Communications, and Computers.
- C^3I — Command, Control, Communications, and Intelligence.
- CAB — Contract Adjustment Board, or Contract Appeals Board.
- CAD — Computer-Aided Design.
- CADE — Computer-Aided Design and Engineering.
- CADS — Computer-Assisted Display Systems.
- CAIS — Computer-Assisted Instruction System.
- CAM — Computer-Aided Manufacturing.
- CAPS — Command Automation Procurement Systems.
- CAS — Contract Administration Services, or Cost Accounting Standards.
- CASB — Cost Accounting Standards Board.
- CASP — Computer-Assisted Search Planning.
- CBD — Commerce Business Daily - publication of the U.S. Department of Commerce listing government contract opportunities and awards.

INPUT

- CBEMA — Computer and Business Equipment Manufacturers Association.
- CBO — Congressional Budget Office.
- CCDR — Contractor Cost Data Reporting.
- CCN — Contract Change Notice.
- CCPDS — Command Center Processing and Display Systems.
- CCPO — Central Civilian Personnel Office.
- CCTC — Command and Control Technical Center (JCS).
- CDR — Critical Design Review.
- CDRL — Contractor Data Requirements List.
- CFE — Contractor-Furnished Equipment.
- CFR — Code of Federal Regulations.
- CIG — Computerized Interactive Graphics.
- CIR — Cost Information Reports.
- CM — Configuration Management.
- CMI — Computer-Managed Instruction.
- CNI — Communications, Navigation, Identification.
- CO — Contracting Office, Contract Offices, or Change Order.
- COB — Command Operating Budget.
- COBOL — COmmon Business Oriented Language.
- COC — Certificate of Competency (administered by Small Business Administration).
- COCO — Contractor-Owned, Contractor-Operated.
- CODSIA — Council of Defense and Space Industry Associations.
- CONUS — CONtinental United States.
- COP — Capability Objectives Package.
- COTR — Contracting Officer's Technical Representative.
- CP — Communications Processor.
- CPAF — Cost-Plus-Award-Fee Contract.
- CPFF — Cost-Plus-Fixed-Fee Contract.
- CPIF — Cost-Plus-Incentive-Fee Contract.
- CPR — Cost Performance Reports.
- CPSR — Contractor Procurement System Review.

INPUT

- CPU — Central Processor Unit.
- CR — Cost Reimbursement (Cost Plus Contracts).
- CSA — Combat or Computer Systems Architecture.
- C/SCSC — Cost/Schedule Control System Criteria (also called "C"-Spec).
- CWAS — Contractor Weighted Average Share in Cost Risk.

- DAL — Data Accession List.
- DAR — Defense Acquisition Regulations.
- DARPA — Defense Advanced Research Projects Agency.
- DAS — Data Acquisition System.
- DBHS — Data Base Handling System.
- DBMS — Data Base Management System.
- DCA — Defense Communications Agency.
- DCAA — Defense Contract Audit Agency.
- DCAS — Defense Contract Administrative Services.
- DCASR — DCAS Region.
- DCC — Digital Control Computer.
- DCP — Development Concept Paper (DoD).
- DCS — Defense Communications System.
- DDA — Dynamic Demand Assessment (Delta Modulation).
- DDC — Defense Documentation Center.
- DDL — Digital Data Link.
- DDN — Digital Data Network.
- DDS — Dynamic Diagnostics System.
- D&F — Determination and Findings - required documentation for approval of a negotiated procurement.
- DIA — Defense Intelligence Agency.
- DHHS — Department of Health and Human Services.
- DIDS — Defense Integrated Data Systems.
- DISC — Defense Industrial Supply Center.
- DLA — Defense Logistics Agency.
- DMA — Defense Mapping Agency.

INPUT

- DNA   Defense Nuclear Agency.
- DO   Delivery Order.
- DOA   Department of Agriculture (also USDA).
- DOC   Department of Commerce.
- DOE   Department of Energy.
- DOI   Department of Interior.
- DOJ   Department of Justice.
- DOS   Department of State.
- DOT   Department of Transportation.
- DPA   Delegation of Procurement Authority (granted by GSA under FPRs).
- DPC   Defense Procurement Circular.
- DQ   Definite Quantity Contract.
- DQ/PL   Definite Quantity Price List Contract.
- DR   Deficiency Report.
- DSN   Defense Switched Network.
- DSP   Defense Support Program (WWMCCS).
- DSS   Defense Supply Service.
- DTC   Design-to-Cost.

- ECP   Engineering Change Proposal.
- ED   Department of Education.
- EEO   Equal Employment Opportunity.
- EIA   Electronic Industries Association.
- 8(a) Set-Aside   Agency awards directly to Small Business Administration for direct placement with a socially/economically disadvantaged company.
- EMC   Electro Magnetic Compatibility.
- EMCS   Energy Monitoring and Control System.
- EO   Executive Order - Order ISS by the President.
- EOQ   Economic Ordering Quantity.
- EPA   Economic Price Adjustment.
- EPA   Environmental Protection Agency.

INPUT

- EPMR   Estimated Peak Monthly Requirement.
- EPS   Emergency Procurement Service (GSA), or Emergency Power System.

- FA   Formal Advertising.
- FAC   Facility Contract.
- FAR   Federal Acquisition Regulations.
- FCA   Functional Configuration Audit.
- FCC   Federal Communications Commission.
- FCDC   Federal Contract Data Center.
- FCRC   Federal Contract Research Center.
- FDPC   Federal Data Processing Centers.
- FEDSIM   Federal (Computer) Simulation Center (GSA).
- FEMA   Federal Emergency Management Agency.
- FFP   Firm Fixed-Price Contract (also Lump Sum Contract).
- FIPS-PUBS   Federal Information Processing Standards Publications.
- FIRMR   Federal Information Resource Management Regulations.
- FMS   Foreign Military Sales.
- FOC   Final Operating Capability.
- FOIA   Freedom of Information Act.
- FP   Fixed-Price Contract.
- FP-L/H   Fixed-Price - Labor/Hour Contract.
- FP-LOE   Fixed-Price - Level-of-Effort Contract.
- FPMR   Federal Property Management Regulations.
- FPR   Federal Procurement Regulations.
- FSC   Federal Supply Classification.
- FSG   Federal Supply Group.
- FSN   Federal Stock Number.
- FSS   Federal Supply Schedule, or Federal Supply Service (GSA).
- FTS   Federal Telecommunications System.
- FY   Fiscal Year.
- FYDP   Five-Year Defense Plan.

     INPUT

- GAO — General Accounting Office.
- GFE — Government-Furnished Equipment.
- GFM — Government-Furnished Material.
- GFY — Government Fiscal Year (October to September).
- GIDEP — Government-Industry Data Exchange Program.
- GOCO — Government Owned - Contractor Operated.
- GOGO — Government Owned - Government Operated.
- GPO — Government Printing Office.
- GPS — Global Positioning System.
- GS — General Schedule.
- GSA — General Services Administration.
- GSBCA — General Services (Administration) Board of Contract Appeals.

- HPA — Head of Procuring Activity.
- HSDP — High-Speed Data Processors.
- HUD — (Department of) Housing and Urban Development.

- ICA — Independent Cost Analysis.
- ICAM — Integrated Computer-Aided Manufacturing.
- ICE — Independent Cost Estimate.
- ICP — Inventory Control Point.
- ICST — Institute for Computer Sciences and Technology, National Bureau of Standards, Department of Commerce.
- IDAMS — Image Display And Manipulation System.
- IDEP — Interservice Data Exchange Program.
- IDN — Integrated Data Network.
- IFB — Invitation For Bids.
- IOC — Initial Operating Capability.
- IOI — Internal Operating Instructions.
- IQ — Indefinite Quantity contract.
- IR&D — Independent Research & Development.
- IRM — Information Resource Manager.
- IXS — Information Exchange System.

INPUT

- JOCIT — JOVIAL Compiler Implementation Tool.
- JSIPS — Joint Systems Integration Planning Staff.
- JSOP — Joint Strategic Objectives Plan.
- JSOR — Joint Service Operational Requirement.
- JUMPS — Joint Uniform Military Pay System.

- LC — Letter Contract.
- LCC — Life Cycle Costing.
- LCMP — Life Cycle Management Procedures (DD7920.1).
- LCMS — Life Cycle Management System.
- L-H — Labor-Hour Contract.
- LOI — Letters of Interest.
- LRPE — Long-Range Procurement Estimate.
- LSI — Large-Scale Integration.

- MAISRC — Major Automated Information Systems Review Council.
- MANTECH — MANufacturing TECHnology.
- MAPS — Multiple Address Processing System.
- MASC — Multiple Award Schedule Contract.
- MDA — Multiplexed Data Accumulator.
- MENS — Mission Element Need Statement, or Mission Essential Need Statement (see DD-5000.1 Major Systems Acquisition).
- MILSCAP — Military Standard Contract Administration Procedures.
- MIL SPEC — Military Specification.
- MIL STD — Military Standard.
- MIPR — Military Interdepartmental Purchase Request.
- MOD — Modification.
- MOL — Maximum Ordering Limit (Federal Supply Service).
- MPC — Military Procurement Code.
- MYP — Multi-Year Procurement.

- NARDIC — Navy Research and Development Information Center.
- NASA — National Aeronautics and Space Administration.

INPUT

- NCMA — National Contract Management Association.
- NICRAD — Navy-Industry Cooperative Research and Development.
- NIP — Notice of Intent to Purchase.
- NMCS — National Military Command System.
- NSA — National Security Agency.
- NSF — National Science Foundation.
- NSIA — National Security Industrial Association.
- NTIS — National Technical Information Services.

- Obligation — "Earmarking" of specific funding for a contract, from committed agency funds.
- OCS — Office of Contract Settlement.
- OFCC — Office of Federal Contract Compliance.
- Off-Site — Services to be provided near, but not on/in government facility.
- OFMP — Office of Federal Management Policy (GSA).
- OFPP — Office of Federal Procurement Policy.
- OIRM — Office of Information Resources Management.
- O&M — Operations & Maintenance.
- OMB — Office of Management and Budget.
- O,M&R — Operations, Maintenance & Repair.
- On-Site — Services (nonpersonal) to be performed on a government installation (or in a specified building).
- OPM — Office of Procurement Management (GSA), or Office of Personnel Management.
- Options — Sole-source additions to the base contract, for services or goods, to be exercised at the government's discretion.
- OSHA — Occupational Safety and Health Act.
- OSP — Offshore Procurement.
- OTA — Office of Technology Assessment (Congress).
- Out-Year — Proposed funding for fiscal years beyond the Budget Year (next fiscal year).

INPUT

- P-1   FY Defense Production Budget.
- P^3I Pre-Planned Product Improvement (program in DoD).
- PAR   Procurement Authorization Request, or Procurement Action Report.
- PAS   Pre-Award Survey.
- PASS   Procurement Automated Source System.
- PCM   Pulse Code Modulation.
- PCO   Procurement Contracting Officer.
- PDA   Principal Development Agency.
- PDM   Program Decision Memorandum.
- PDR   Preliminary Design Review.
- PIR   Procurement Information Reporting.
- PME   Performance Monitoring Equipment.
- PMP   Program Management Plan.
- PO   Purchase Order, or Program Office.
- POM   Program Objective Memorandum.
- PPBS   Planning, Programming, Budgeting System.
- PPM   Pulse Position Modulation.
- PR   Purchase Request, or Procurement Requisition.
- PROM   Programmable Read-Only Modules.
- PS   Performance Specification - alternative to a Statement of Work, when work to be performed can be clearly specified.

- QA   Quality Assurance.
- QAO   Quality Assurance Office.
- QMCS   Quality Monitoring and Control System (DoD Software).
- QMR   Qualitative Material Requirement (Army).
- QPL   Qualified Products List.
- QRC   Quick Reaction Capability.
- QRI   Quick Reaction Inquiry.

- R-1   FY RDT&E Budget.
- RAM   Reliability, Availability, and Maintainability.

    INPUT

- RC   Requirements Contract.
- RCR   Resource Consumption Routine.
- R&D   Research & Development.
- RDA   Research, Development, and Acquisition.
- RDD   Required Delivery Date.
- RD&E   Research, Development, and Engineering.
- RDF   Rapid Deployment Force.
- RDT&E Research, Development, Test, & Engineering.
- RFI   Request For Information.
- RFP   Request For Proposal.
- RFQ   Request For Quotation.
- RFTP   Request For Technical Proposals (Two-Step).
- ROC   Required Operational Capability.
- ROI   Return On Investment.
- RTAS   Real-Time Analysis System.
- RTDS   Real-Time Display System.

- SA   Supplemental Agreement.
- SBA   Small Business Administration.
- SB Set-Aside Small Business Set-Aside contract opportunities with bidders limited to certified small businesses.
- SCA   Service Contract Act (1964 as amended).
- SCN   Specification Change Notice.
- SEC   Securities and Exchange Commission.
- SE&I   Systems Engineering and Integration.
- SETA   Systems Engineering/Technical Assistance.
- SETS   Systems Engineering/Technical Support.
- SIBAC Simplified Intragovernmental Billing and Collection System.
- SIMP   Systems Integration Master Plan.
- SIOP   Single Integrated Operations Plan.
- SNAP   Shipboard Nontactical ADP Program.
- Sole Source Contract award without competition.
- Solicitation Invitation to (submit a) bid.

INPUT

- SOR — Specific Operational Requirement.
- SOW — Statement of Work (negotiated procurements).
- SSA — Source Selection Authority (DoD).
- SSAC — Source Selection Advisory Council.
- SSEB — Source Selection Evaluation Board.
- SSO — Source Selection Official (NASA).
- STINFO — Scientific and Technical INFOrmation Program - Air Force/NASA.
- SWO — Stop-Work Order.
- Synopsis — Brief description of contract opportunity in CBD, after D&F and before release of solicitation.

- TA/AS — Technical Assistance/Analyst Services.
- TDMA — Time Division Multiple Access.
- TEMPEST — DoD techniques to inhibit unintentional electromagnetic radiation.
- TILO — Qualified Requirements Information Program - Army.
- TM — Time and Materials contract.
- TOA — Total Obligational Authority (Defense).
- TOD — Technical Objective Document.
- TR — Temporary Regulation (added to FPR, FAR).
- TRACE — Total Risk Assessing Cost Estimate.
- TRCO — Technical Representative of the Contracting Offices.
- TREAS — Department of Treasury.
- TRP — Technical Resources Plan.
- TSP — Teleprocessing Services Program (GSA).

- UCAS — Uniform Cost Accounting System.
- UPS — Uninterruptable Power Source.
- USA — U.S. Army.
- USAF — U.S. Air Force.
- USMC — U.S. Marine Corps.
- USN — U.S. Navy.

INPUT

- U.S.C.   United States Code.
- U.S.P.S.   United States Postal Service.
- USRRB   United States Railroad Retirement Board.

- VA   Veterans Administration.
- VE   Value Engineering.
- VHSIC   Very High Speed Integrated Circuits.
- VIABLE   Vertical Installation Automation BaseLine (Army).
- VICI   Voice Input Code Identifier.
- VLSI   Very Large Scale Integration.

- WBS   Work Breakdown Structure.
- WGM   Weighted Guidelines Method.
- WIN   WWMCCS Intercomputer Network.
- WIS   WWMCCS Information Systems.
- WS   Work Statement - Offerer's description of the work to be done (proposal or contract).
- WWMCCS   WorldWide Military Command and Control System.

B.   OMB CIRCULARS

- A-11   Preparation and Submission of Budget Estimates.
- A-49   Use of Management and Operating Contracts.
- * A-71   Responsibilities for the Administration and Management of Automatic Data Processing Activities.
- A-76   Policies for Acquiring Commercial or Industrial Products and Services Needed by the Government.

* These policies superceded by A- (as yet unnumbered) Management of Federal Information Resources

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- * A-108 Responsibilities for Maintenance of Records about Individuals by Federal Agencies.
- A-109 Major Systems Acquisitions.
- A-120 Guidelines for the Use of Consulting Services.
- * A-121 Cost Accounting, Cost Recovery, and Integrated Sharing of Data Processing Facilities.

C. DEPARTMENT OF DEFENSE DIRECTIVES

- DD-5000.1 Major System Acquisitions.
- DD-5000.2 Major System Acquisition Process.
- DD-5000.31 Interim List of DoD-Approved High-Order Languages.
- DD-5000.35 Defense Acquisition Regulatory Systems.
- DD-5200.1 DoD Information Security Program.
- DD-7920.1 Life Cycle Management of Automated Information (AIS).
- DD-7920.2 Major Automated Information Systems Approval Process.

D. GENERAL SERVICES ADMINISTRATION REGULATIONS

- DAR Defense Acquisition Regulations
- FAR Federal Acquisition Regulations
- FIRMR Federal Information Resource Management Regulations
- FPMR Federal Property Management Regulations
- FPR Federal Procurement Regulations
- TSP Teleprocessing Services Program

* These policies superceded by A- (as yet unnumbered) Management of Federal Information Resources

INPUT

APPENDIX D: RELATED INPUT REPORTS

A.   ANNUAL REPORTS

		Year
•	U.S. Information Services Markets, 1984-1989 Volume I - Industry-Specific Markets	1984
•	U.S. Information Services Markets, 1984-1989 Volume I - Vertical Market	1984

B.   INDUSTRY SURVEYS

•	Eighteenth Annual ADAPSO Survey of the Computer Services Industry	1984
•	Sixteenth Annual ADAPSO Survey of the Computer Services Industry	1982
•	Directory of Leading U.S. Information Services Vendors	1983

INPUT

C. MARKET REPORTS

INPUT

INPUT

MASC VENDORS AND HARDWARE OFFERED

VENDOR	COMPUTER SYSTEM (10.b)	OPERATING SYSTEM (10.c)	PERCENT FEDERAL GOV.
1. ADP	DEC KL 10 KI 10	TOPS 10 TOPS 10	100
2. AMS	DEC 2060 (Hea.) IBM	TOPS 20 VM; MVS & CMS	95 5
3. BCS	IBM IBM CDC CRI/VSP Cray	VM/CTS TSO EKS CRI/VSP	
4. Bowne	IBM VM 4341	IBM-DOS Under VM	100
5. The Brooking Inst.	–	–	?
6. Babcox & Wilcox	CDC IBM		?
7. CACI	IBM 4341-II (2 ea.)	MVS/SP	100
8. CDG	Amdahl 470-48 IBM 3081-D IBM 3081-D Amdahl 5860-D IBM 4341-2	MVS;VM/CMS " " " "	100
9. Compuserv Datasystems	DEC KI-10 (5 ea.)	CSMS	100
10. CDS	IBM 4341 MO2 (2 ea.)	MVS/SP 1.3.1	100
11. Computer Network Corp (COMNET)	IBM 3033	MVS	100
12. CSC (Gov't. Sys. Division)	Univac IBM	CSTS II MVS	90 10
13. Computer Sharing Services	Honeywell CSS-DTSS DPS-3	DTSS	100
14. Comshare, Inc.	Xerox Sigma 9 (24 ea.)	Commander II	100

MASC VENDORS AND HARDWARE OFFERED

VENDOR	COMPUTER SYSTEM (10.b)	OPERATING SYSTEM (10.c)	PERCENT FEDERAL GOV.
15. CDC/BIS old Service Bureau	IBM 3032 #2 IBM 158-3 #5 IBM 3033 #6 IBM 3032 MVS 1 IBM 3032 MVS 2	(IBM) – Call/370 + Call/Plus " " "	100
16. CDC	Cyber 170/370	NOS with Plato application system	100
17. D&B Computing Services	IBM 3081 IBM 3033 Amdahl-470 V/S	VP/CSS " "	100
18. D.H.D. Inc.	DEC KI-1070 DEC 10 DEC KL – 1091B	TOPS 10	100
19. Kiewit Computation Center	Honeywell 66/DPS-3	DTSS	
20. Data Management Associates	IBM MODII 370/155 (2 systems)	IBM DS/VS2 MVS	100
21. Data Resources, Inc.	Burroughs B-7700 Burroughs B-7800	MCP "	100
22. Datec, Inc.	Univac 1100/60 EI	1100 Executive	100
23. EDS (Fed. Corp.)	IBM 370/3033-M8 (2 systems)	OS/VS2 (MVS)	100
24. GENASYS Corp.	Hewlett-Packard HP 3000 III	MPE IV	100
25. General Electric Info. Corp.	Honeywell DPS 8/70 IBM 3081	GEISCO; GCOS; MVS	75 25
26. IBIS Corp.	DEC KL 1091 B/10 2060/20 (2 ea.) UNIVAC 1100/81	TOPS 10 " OS/1100	?
27. Informatics	IBM 370/150 III NASCO AS/7000 (AS/7) NASCO AS/9000 (AS/9) IBM 370/168	VM/370/CMS CMS; OS/VS2; MVS	100

INPUT
GPS2

MASC VENDORS AND HARDWARE OFFERED

VENDOR	COMPUTER SYSTEM (10.b)	OPERATING SYSTEM (10.c)	PERCENT FEDERAL GOV.
28. Information Consultants	DEC 2060/KLIOB MB20M/MF20M/MF20M DEC 2060/KLIOB MB20M	TOPS 20 "	100
29. International Business Machines	IBM 3033/012 IBM 3033/016	MVS/SP JES2; VM/SP; DOS/VSE	100
30. ITT Dialcom, Inc.	Honeywell 1648 (4 ea.) Prime 850, 750, 400 (14 total)	Honeywell 1648 Primes	100
31. Litton Computer Services	IBM 3033/012	OS/VS2; MVS/SP	100
32. Litton Systems, Inc.	IBM 3081/D32 IBM 3033/012 IBM 4341/-2/M02	MVS " "	100
33. McDonnell Douglas	IBM 370/3081 (3 ea.) IBM 370/3033 (7 ea.) CDC 170/825 (1 ea.) CDC 170/835 (2 ea.) CDC 170/176 (1 ea.) CDC 170/855 (1 ea.)	IBM-MVS CDC-NAS	20 80
34. MMDS	IBM 3081, B, C	IBM, MVS	100
35. National Computer Systems	IBM (A) 370/3031 IBM (B) 370/3033	MVS/SP "	100
36. National Data Corporation	DEC KI/1070 (4 ea.) DEC KL/1090 (2 ea.) DEC KL/1090 SMP UNIVAC 1100/11, 1100/80 Data General 494,5-140	TOPS 10	100
37. Neshaminy Valley Processing, Inc.	IBM 370/158 Ab (2ea) IBM 370/3033- U16 IBM 370/3033-M24	MVS/SP; VM/SP; VM/EMS; DOS/VSE VM	100
38. Onyx Inc.	Perkins Elmer 3220 Perkins Elmer 7/32	OS/32	100

INPUT
GPS2

MASC VENDORS AND HARDWARE OFFERED

VENDOR	COMPUTER SYSTEM (10.b)	OPERATING SYSTEM (10.c)	PERCENT FEDERAL GOV.
39. Planning Research Corp.	NASC (ITEL)AS-6-2 NASC (ITEL)AS-5-1	IBM OS/VS2 (MVS) "	100
40. Programs & Analysis, Inc.	Honeywell, DPS 8/50	GCOS	100
41. Proprietary Computer Systems,	IBM 3031 Amdahl 470	OSMVT;)S VS2 MVS; VM/SP	100
42. SBD Computer	UNIVAC 1100/61	Series 1100 05	100
43. Softshare	DEC 780VAX	DEC VMS	100
44. STSC, Inc.	IBM 3033	APL* PlusSystem: VM 370/SP w/CMS/SP	100
45. Systems Architects Inc.	DEC 20 MOD 2060 (2 ea.)	TOPS 20	100
46. Tymshare	DEC 10 DEC 10 IBM	Exec XEXEC/Tymshare VM/CMS	10 90
47. UniColl Corp.	IBM 370/168 3168–M34 IBM 370/168 3168/M33	IBM OS/VS2MVS	100
48. United Information Services (bought by CDC)	CDC IBM CRAY DEC	APEX CMS/MVS CRAY TOPS 10	?
49. University Computing Co.	Univac 1100/80A Univac 1100/82	1100/0S	100

FEDERAL PROCESSING SERVICES SURVEY – AGENCY

1. Are you currently using remote computing services (timesharing)?
☐ Yes ☐ No

a. In No, did you ever? _____

b. If No, do you know someone who does? _____
(name/phone)

If Yes, begin interview.

---

1. What applications are you running on RCS and with whom?

Application	Vendor
_____	_____
_____	_____
_____	_____
_____	_____

2. How much of your RCS work would you say is interactive versus batch?
Interactive _____ Batch _____

3. In the past, has your office moved any applications from RCS to other
forms of data processing? ☐ Yes ☐ No

(If yes)
a. To Department Minicomputer? ☐ Yes ☐ No
What type of application? _____

b. To Agency In-House Computer ☐ Yes ☐ No
Center?
What type of application? _____

c. To Personal Computer? ☐ Yes ☐ No
What type of application? _____

d. To Off-Site Contractor? ☐ Yes ☐ No
What type of application? _____

INPUT

3a. What were the three most important reasons for switching the application(s) from RCS to other computing services?

1. _____

2. _____

3. _____

4. Do you anticipate moving any applications off RCS in the future?
   ☐ Yes ☐ No

a. Why? _____

_____

_____

5. On a scale of 1 to 5 (1 = unsatisfied, 5 = extremely satisfied), how would you rate your experience with the following:

   a. Department Mini (if applicable) _____
      Why? _____

      _____

   b. Agency In-House Computer Center _____
      Why? _____

      _____

   c. Personal Computer (if applicable) _____
      Why? _____

      _____

   d. RCS _____
      Why? _____

      _____

INPUT

6. Have you had experience with procuring RCS services under either the MASC or BA? ☐ Yes ☐ No

   a. Which one? ☐ MASC ☐ BA

   b. In your opinion, how could the MASC (BA be improved? _____

   _____

   _____

7. Have you ever used RCS Services that were supplied through a subcontract? (For example, the RCS vendor subcontracted to someone else.) ☐ Yes ☐ No

   a. If Yes, was the RCS vendor a subcontractor to:

   A Big Eight accounting firm (Arthur Andersen; Peat/Marwick/Mitchell)?   ☐ Yes   ☐ No

   Consulting firm (Booze Allen)?   ☐ Yes   ☐ No

   A professional services firm (PRC)?   ☐ Yes   ☐ No

   A "Not for Profit" firm (MITRE)?   ☐ Yes   ☐ No

   An 8A firm (Wilson Hill)?   ☐ Yes   ☐ No

   An R&D firm (BDM)?   ☐ Yes   ☐ No

8. Have you ever bought RCS Services that were not offered under the TSP? ☐ Yes ☐ No

   a. If Yes, what application and which vendor? _____

   _____

   _____

9. Does your agency have any data of value to the public which could generate revenue for the Government if placed on an RCS vendor? For example, Agriculture has commodities data which it is going to sell to the public through a third party RCS vendor. ☐ Yes ☐ No

   a. If Yes, what? _____

   _____

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INPUT

10. Do you foresee any future applications which could go RCS? (emphasize)

☐ Yes   ☐ No

a. If Yes, what? _____

_____

11. Have you ever run an application on RCS which used microcomputers specially programmed for the application? ☐ Yes ☐ No

a. If Yes, what application? _____

_____

12. On a scale of 1 to 5 (1 = unsatisfied, 5 = extremely satisfied), how would you rate this RCS/Micro approach to an application? _____

13. If RCS vendors could supply micros under the TSP program, would that increase your usage of services offered under the TSP? ☐ Yes ☐ No

Why? _____

_____

_____

14. On a scale of 1 to 5 (1 = unsatisfied, 5 = extremely satisfied), what has been your experience with the following RCS services:

		1	2	3	4	5
1.	Customer Support	1	2	3	4	5
2.	Training	1	2	3	4	5
3.	Documentation	1	2	3	4	5
4.	Delivery of Special Applications	1	2	3	4	5
5.	Staying within Cost Estimates	1	2	3	4	5
6.	Uptime	1	2	3	4	5
7.	Response Time	1	2	3	4	5

INPUT

15. In your opinion what are the two most easily identifiable benefits of RCS?

 1. _____

 _____

 2. _____

 _____

16. In your opinion what are the two most easily identifiable shortcomings of RCS?

 1. _____

 _____

 2. _____

 _____

17. Do you know anyone else in your agency using RCS? ☐ Yes ☐ No

a. If Yes, who? _____

 _____

The last few questions relate to actual budget expenditures. If you cannot answer them, would you please refer me to someone who can?

1. How much are you currently spending on RCS per month? $ _____

2. Has that increased or decreased over th past year? ☐ Increased ☐ Decreased

a. By what percent? _____ % And why? _____

 _____

INPUT

3. Do you expect this spending to increase or decrease over the next 12 months?
    ☐ Increase ☐ Decrease

a. By what percent? _____% And why? _____

_____

4. Do you foresee an increase or decrease in this spending over the next two
    to five years? ☐ Increase ☐ Decrease

a. By what percent? _____% And why? _____

_____

INPUT

FEDERAL PROCESSING SERVICES SURVEY - INDUSTRY

1. Are you currently providing remote computing services (timesharing):

   ☐ Yes ☐ No

   a. If No, did you ever? _____

   b. If No, do you know someone who does? _____
      <p align="right">name/phone number</p>

If Yes, continue to next page.

INPUT

1. What part of your revenue was done in remote computing services last year?
   _____

2. What part of your remote computing services was done with the Federal Government last year? _____

3. Have you recently been awarded any RCS contracts whose revenues are not included in these figures? ☐ Yes ☐ No

a. If yes: Agency   Program

   _____   _____

   _____   _____

   _____   _____

   _____   _____

b. In the next two years, do you see your company increasing or decreasing revenue business with the government? ☐ Increasing ☐ Decreasing

c. By what annual percent per year? _____ %

4. Is your company on the MASC schedule for the TSP program? ☐ Yes ☐ No

a. If No, have you been on MASC in the past? ☐ Yes ☐ No

b. If Yes, why are you not on the MASC currently? _____
   _____
   _____

5. In your opinion, how could the MASC be improved? _____
   _____
   _____
   _____
   _____

INPUT

6. Is your company on the BA schedule for the TSP program? ☐ Yes ☐ No

 a. If No, have you been on BA in the past? ☐ Yes ☐ No

 b. If Yes, why are you not on the BA currently? _____

 _____

 _____

7. In your opinion, how could the BA be improved? _____

 _____

 _____

 _____

 _____

8. What percent of your company's revenue is derived from the following?

 Interactive _____ %

 Batch _____ %

 FM Processing (operating dedicated machine for a client) _____ %

9. What agencies do you provide RCS services to currently? _____

 _____

 _____

10. Which agencies provide the most RCS revenue? _____

 _____

11. What are the three largest revenue producing applications that your company
 has with the Federal Government?

 1._____

 2._____

 3._____

INPUT

12. In the past, have you lost RCS applications to other forms of data processing?

    ☐ Yes ☐ No

a. If Yes:

1. To Department Minicomputer? ☐ Yes ☐ No

   What type of application? _____

   Why? _____

2. To Agency In-House Computer Center? ☐ Yes ☐ No

   What type of application? _____

   Why? _____

3. To Personal Computer? ☐ Yes ☐ No

   What type of application? _____

   Why? _____

4. To Off-Site Contractor? ☐ Yes ☐ No

   What type of application? _____

   Why? _____

5. To other Agency Data Centers? ☐ Yes ☐ No

   What type of application? _____

   Why? _____

12b. In your opinion, what are the two or three most important reasons why an RCS application moves to one of these alternatives?

    1. _____

    _____

    2. _____

    _____

    3. _____

    _____

INPUT

13. In your opinion, what are the two or three most important reasons why an RCS application does not move to one of these alternatives?

1. _____

_____

2. _____

_____

3. _____

_____

14. Which applications, in order of importance, have suffered the greatest loss in the past year to alternate forms of data processing?

1. _____

2. _____

3. _____

15. What applications do you feel are most vulnerable to replacement by alternate forms of data processing:

Next 12 Months   Next 2-5 Years

_____   _____

_____   _____

_____   _____

_____   _____

INPUT

16. Does your company currently offer any products or services specifically designed to combine personal computers with RCS? ☐ Yes ☐ No

   a. If No, do you have any plans to offer such a product or service within the next year? ☐ Yes ☐ No

   b. If Yes, do you offer this product or service to the Federal Government? ☐ Yes ☐ No

   c. If No, why not? _____

      _____

      _____

17. Have you ever run a Government application on RCS which used microcomputers specially programmed just for the application? ☐ Yes ☐ No

   a. If yes, what applications? _____

      _____

      _____

18. In your opinion, what do you think would be the Government's reaction to an RCS/Micro approach? _____

   _____

   _____

   _____

19. If you could supply micros under the TSP program, do you think that would significantly increase your RCS revenues? ☐ Yes ☐ No

   a. Why? _____

   _____

   _____

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20. On a scale of 1 to 5 (1 = unsatisfied, 5 = extremely satisfied), how do you think the Agencies rate the following RCS vendor characteristics:

Customer Support	1	2	3	4	5
Training	1	2	3	4	5
Documentation	1	2	3	4	5
Delivery of Special Attention	1	2	3	4	5
Staying within Cost Estimates	1	2	3	4	5
Uptime	1	2	3	4	5
Response Time	1	2	3	4	5

21. What are the three most significant problems you have encountered in selling RCS services to the Federal Government?

1. _____

2. _____

3. _____

22. Have you ever provided RCS services as a subcontractor to a firm who held a prime contract with the Government? ☐ Yes ☐ No

a. If Yes, did you subcontract to:

1. A Big Eight accounting firm (Authur Andersen)? ☐ Yes ☐ No

2. A consulting firm (Booz Allen)? ☐ Yes ☐ No

3. A professional services firm (PRC)? ☐ Yes ☐ No

4. A "Not for Profit" firm (MITRE)? ☐ Yes ☐ No

5. An 8A firm (Wilson Hill)? ☐ Yes ☐ No

6. An R&D firm (BDM)? ☐ Yes ☐ No

7. A Small Business Firm (OAO, Raven)? ☐ Yes ☐ No

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INPUT

23. Have you ever provided RCS services to the Government outside the TSP?

☐ Yes ☐ No

a. If Yes, what application and which agency? _____

_____

_____

_____

24. In your opinion, what are the two most easily identifiable benefits of RCS to the Federal Government?

1. _____

_____

2. _____

_____

25. In your opinion, what are the two most easily identifiable shortcomings of RCS to the Federal Government?

1. _____

_____

2. _____

_____

THANK YOU!!

INPUT